John Cranford,
M. D.

MEDICAL FACTS

AND

OBSERVATIONS.

VOL. II.

MEDICAL FACTS

AND

OBSERVATIONS.

VOLUME THE SECOND.

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MEDICAL

UNIVERSITY OF MARYLAND
1819
SCHOOL OF MEDICINE

MEDICAL FACTS AND OBSERVATIONS.

I. *Case of a compound Fracture of the Leg; with Remarks. By Mr.* Henry Yates Carter, *Surgeon at Kettley, near Wellington, in Shropshire.*

ON the 4th of January, 1785, Thomas Oliver, a Collier, sixty years old, received, from the fall of a bucket down a coal pit, in which he was at work, a compound fracture of the bones of his right leg.

The injury was effected with so much violence as to occasion an almost complete division of the muscles; so that the lower part of the leg, with the foot, remained hanging only by a small portion of the gastrocnemius internus or soleus muscle.

When I first saw him, which was late at night, about two hours after the accident, I found, besides the laceration of the integuments, muscles, and other soft parts, a considerable protrusion of the tibia, in consequence of the violence of the muscular contraction; his strength, at the same time, seeming to be greatly reduced by extreme pain and loss of blood: so that when to these appearances I added the circumstances of his age, and habit of body, (for he had been afflicted with scorbutic ulcers in the fractured limb for several years) I must confess I had little or no expectation of success from any other remedy than the knife. As the hæmorrhage, however, which at first had been profuse, was now considerably checked, (probably by his exposure to cold, for he had been brought a considerable distance on horseback) and was soon totally stopped by the application of spirit of wine to the wound, assisted by slight pressure, by means of a tourniquet, on the crural artery, I resolved to defer the farther consideration of the case till the next morning.

After the wound had been sufficiently cleansed, a slight extension was found sufficient to reduce the limb to its natural posture, which was immediately

immediately done. The wound was then dreſſed with lint ſaturated with vinegar and tincture of myrrh, and the limb being ſecured in its ſituation, and an anodyne adminiſtered to the patient, I left him, under proper care, for the night; having determined in my own mind to propoſe, the next morning, either the amputation of the leg, or his removal, if poſſible, to the County Infirmary, as the poor man's ſituation, together with his having a large and helpleſs family, appeared to be forcible reaſons for his removal, and to operate againſt the probability of his recovery at home.

The next day (January the 5th) I viſited him early, and found that he had reſted much better than could reaſonably have been expected. He had but little fever, and appeared to be in tolerable ſpirits. The diſcharge of blood, from the time I had left him, had been ſo inconſiderable as not to have come through the dreſſings; and as the limb did not ſeem to ſuffer from the extremely gentle ſtricture of the tourniquet, it was thought adviſable to leave it on the limb.

As the patient ſtrenuouſly objected to the propoſal of removing him to the Infirmary, as well as to that of amputation, it became neceſſary to

attempt the cure of the limb at home without an operation.

The firſt thing to be conſidered was how to ſecure a limb in ſuch a ſtate in perfect contact; and in the next place how to guard againſt an accumulation of matter between the divided ends of the bone: for it was eſſential that the limb ſhould be kept perfectly ſteady, and it was reaſonable to ſuppoſe that ſo large a wound would, from the diſcharge, require frequent dreſſing. I firſt began, therefore, by preparing a flexible wooden ſplint, covered with leather, about four inches broad and ten long, upon which was laid a very thick compreſs or bolſter of linen of the ſame dimenſions, the lower part of which was filled with tow, in order to remedy the inequality of the ſmall part of the leg: upon this was laid an eighteen-headed bandage, the two external leaves of which were ſtiffened with white of eggs, in order, in ſome meaſure, to ſerve as a ſubſtitute for ſplints, in the ordinary mode of application, which in this caſe was inadmiſſible. Theſe arrangements being made, the limb was carefully raiſed while an aſſiſtant placed the ſplint, &c., under it on a pillow, upon which the limb was laid without any inconvenience or pain. None of

the dreſſings before employed were removed, except the external layer of lint, a freſh quantity of which was applied, and the bandage laid regularly over it as tight as the nature of the caſe would admit, an opening through the center leaves being made for the admiſſion of all applications that might be neceſſary, as I was determined to leave the dreſſings undiſturbed as long as poſſible. A looſe ſplint was then applied, without any ligature, on each ſide of the limb, and ſecured in that poſture by bolſters of cloth, which were continued on each ſide above the knee.

A liquid application was then ordered to be very frequently applied, compoſed of comphorated ſpirit of wine, two ounces; vinegar, four ounces; tincture of myrrh, one ounce, and ſal ammoniac, a ſcruple: the direction for the uſe of which was ſtrictly adhered to by the perſon who was employed to be conſtantly with the patient, in order to prevent any accident happening to the limb during ſleep.

A powder, containing thirty grains of vitriolated tartar, and twenty of diaphoretic antimony, was directed to be adminiſtered to him every third hour, in barley water, or ſome other ſuitable vehicle; and at night a draught was

given containing twenty-five drops of laudanum.

On the 6th, finding the ſymptoms of fever rather increaſed, I gave him a purgative draught, which procured two ſtools. He had reſted tolerably well; the limb continued ſecure: he began to complain of a ſenſe of foreneſs and of ſhooting (to uſe his own expreſſion) in the limb. In other reſpects he was as well as could be expected, The uſe of the lotion was continued without any alteration.

There was little or no material change in the general circumſtances of the caſe till the 10th, when, upon finding ſome increaſing ſymptoms of fever, which I had reaſon to think were kept up, if not occaſioned, by coſtiveneſs, I repeated the purgative medicine, and with a good effect.

On the 11th, obſerving appearances of diſcharge from the dreſſings, they were carefully taken off; the pus ſeemed to be favourable, and the wound was in a granulating ſtate. A freſh bandage was, without much difficulty, drawn under the limb; and the dreſſings and other applications, with little variation, were continued as before till the 17th, when the wound was again opened, and I had the ſatisfaction to

find a callus forming, and the wound in good condition.

As the diſcharge from the wound was now conſiderable, and the patient complained of thirſt and that his appetite was not ſo good as it had been, I adviſed a liberal uſe of Port wine, and of the red Peruvian bark, both in ſubſtance and in decoction, to which I added ſmall doſes of nitre, till the 20th, when the ſymptoms of fever ſeemed to have ſubſided. The wound was again dreſſed on that day, and from that time regularly every day.

After the 30th, the uſe of the bark ſeeming to be no longer indicated, it was wholly omitted; the bones gradually united, and the wound healed without any interruption, except from a few ſmall ſplinters of bone, which came away without much difficulty, and did not appear to be exfoliations.

By the 10th of March he was able to leave his bed, and to walk with the aſſiſtance of crutches, and from that time I ceaſed to attend him. The wound was then completely healed, forming a firm cicatrix; and the leg was ſtraight.

This extraordinary fact is a more ſtriking proof than any I have ever met with of the neceſſity there is for great deliberation in caſes where amputation may be thought neceſſary on account of recent external injuries. As a caution to us in caſes of this kind, and to ſhow that we ought not precipitately to have recourſe to extirpation even in the worſt kind of fractures, Van Swieten* has quoted from De la Motte a caſe, ſomewhat ſimilar to mine, of a man who had the tibia and fibula fractured by the wheels of a carriage loaded with ſeveral thouſand weight paſſing over his leg, which occaſioned ſuch a contuſion and laceration of the part, that the whole limb might have been eaſily divided with one cut or two of the ſciſſars. In that caſe a large portion of the tibia was ſeparated, but, notwithſtanding this circumſtance, the patient, we are told, gradually recovered the uſe of his limb, without any deformity remaining.

I am aware that Mr. Pott, whoſe opinion is deſervedly of high authority in ſurgery, particularly refers to the caſe juſt now quoted from De la Motte, and obſerves, that in his opinion,

* Comment. in Aph. Boerh. § 351.

the

the ſurgeon ſhewed much more raſhneſs in attempting to ſave ſuch a limb, than he would have done in the amputation of it*. In the caſe of my patient, however, there could be no ground for ſuch a cenſure; for I am ready to confeſs that nothing but his abſolute refuſal to ſubmit to the operation prevented me from taking off the limb. How far Mr. Pott's arguments† in favour of ſpeedy amputation, in caſes of this ſort, are well founded, I ſhall not at preſent attempt to diſcuſs; but however juſtifiable an operation might have been under circumſtances ſo alarming as thoſe I have deſcribed, and in which there appeared ſuch little probability of ſucceſs, I cannot help thinking that, in ſimilar caſes, where hæmorrhage can by any ſafe means be checked, the divided parts brought into and retained in contact, and when the vital powers have not been too much exhauſted, we ſhould be deterred neither by the age of the patient, nor by a ſeemingly bad habit of body, (reaſons that, to my knowledge, are too

* Remarks on Fractures and Diſlocations. 8vo. London, 1769. p. 75.

† Ibid. p. 73 & ſeq.

often

often alledged) from endeavouring to avoid the neceſſity of having recourſe to amputation.

Upon the whole, I feel myſelf diſpoſed to join in opinion with Dr. Kirkland*, that, however neceſſary and right ſpeedy amputation may be in great hoſpitals, this ought to be no precedent for country practice, in which much more may certainly be expected from the reſources of nature than many imagine.—"My "connections," obſerves the experienced and judicious writer juſt now mentioned, "with "thoſe of my profeſſion have not only led "me to know the ſucceſs of many Surgeons, "whoſe ſituation affords them only common "accidents; but alſo of ſeveral, who, as well as "myſelf, have had the care of the workmen in "Collieries, Lime-kilns, Lead-mines, and the "like, where the moſt violent injuries of this "kind frequently happen. In theſe places, the "bones are, for the moſt part, not only broken "into many pieces, and their extremities, now "and then, ſeparated, ſo as to come away; "but they are alſo often forced into the ground, "the principal arteries ſometimes divided, and

* Obſervations upon Mr. Pott's General Remarks on Fractures, &c. 8vo. London, 1770. p. 41.

"the

" the muſcles, &c. are frequently lacerated, and " cruſhed with immenſe weights, even ſo much, " that coal ſleck, &c. in great quantities, is " driven into the very ſubſtance of the fleſh, " ſo as to render the accident as formidable as " poſſible; and yet, it is a notorious fact, that, " where the part is not abſolutely deſtroyed, " theſe deſperate caſes ſeldom fail of being " cured, without the loſs of the limb *."

Kettley,
Auguſt 2, 1791.

II. *Caſe of a Boy whoſe Head was preſſed between certain Parts of an Engine employed for draining a Coal Mine. By the Same.*

ON the 21ſt of Auguſt, 1787, Thomas Scarrot, a boy about ten years of age, being at play, and looking into the cylinder at Hadley engine, (which is employed for draining a coal work) was caught between that part of it and what is called the horſe head, and received a wound, which extended from the up-

* Ibid.

per

per part of the left temporal muſcle obliquely through the parotid gland and maſſeter muſcle, dividing into two branches, one leading through the ſphincter oris, the other paſſing through the buccinator muſcle, and ending under the lower jaw.

The muſcular integuments were violently lacerated, the head having been preſſed between a ſpace of about three inches; and it ſeemed to be owing to this preſſure that the hæmorrhage which might have been expected to take place was in a great meaſure prevented.

The fore part of the os temporis was not only fractured, but completely ſeparated, as was the contiguous os malæ; the fracture continuing its courſe between the pterygoid and ſtyloid proceſſes, ſo as to divide the upper jaw in thoſe parts and the lower jaw a little before the coronal proceſs. Theſe parts were divided in ſuch a manner, that, when I firſt ſaw the patient, I found the os malæ and the fore part of the upper jaw thrown out of their places, ſo as to expoſe a wound of at leaſt four inches wide; the machine that inflicted it having alſo penetrated ſo deep as to fracture that part of the ſeptum naſi which is formed by the proceſſes of the ethmoidal and ſphenoidal bones.

Beſides

Beſides theſe wounds, there was another upon the os bregmatis, which formed an angle that extended each way towards the os frontis, and had detached the ſcalp the whole diſtance ſo completely, that when he was conveyed home the ſcalp lay over his face.

Under theſe circumſtances, which were the more alarming, as from the injury done to the parts neceſſary to maſtication and deglutition there was every reaſon to fear that his ſupport would be a work of much difficulty, there ſeemed to be but one conſideration for the preſent with reſpect to the wounds; and that was to endeavour, if poſſible, to reduce the ſhattered bones into their places, and there retain them as well as the nature of the caſe would admit, leaving the reſt to nature, as any farther aſſiſtance for the preſent could be but of very trifling effect.

The parts were accordingly firſt well freed from a quantity of grumous blood that covered the whole head, by waſhing them with warm vinegar and a ſmall proportion of camphorated ſpirit of wine; after which the lacerated parts were replaced in a much better ſituation than was at firſt thought to be poſſible. The lower jaw, which had been thrown out of its articulation

lation on the right ſide, was reduced, and, after dreſſing the wounds with large pledgits of lint dipped in vinegar and *balſam. traumatic.* a maſk-like bandage was applied over the whole, and ſo ſecured behind as not to be in danger of removal from the expected reſtleſſneſs of the patient, as I determined to leave the dreſſings as long as poſſible before they ſhould be renewed.

In order to prevent the bandage, &c., from becoming uneaſy, and the parts from being excoriated, they were kept conſtantly wet with a mixture, conſiſting of a ſolution of ſal ammoniac in vegetable acid with a ſmall proportion of extract of lead, the good effects of which I had before experienced in lacerated wounds, where it had ſeemed to promote the union of the parts, and to moderate, in ſome meaſure, the diſcharge.

After the wounds were dreſſed, the patient attempted to drink a ſmall quantity of wine and water, but a conſiderable part of it returned through his noſe. In the evening, however, an opiate was got down without much difficulty, and he reſted tolerably well.

His drink was directed to be weak wine and water acidulated with lemon juice; his diet, thin

thin panada, water gruel, ſago, or boiled rice: and, in conſequence of his inability to take much at a time, a perſon was employed to be frequently adminiſtering nouriſhment, which was conveyed into the pharynx by means either of a ſmall funnel, or a tea-pot with a long neck, which reached beyond the injury in the palate.

He drew his breath with difficulty, though leſs ſo than from the nature of the caſe might have been expected.

The next day there was a conſiderable degree of fever, for which ſuitable remedies were directed. Care was taken at the ſame time to obviate coſtiveneſs; and the opiate was occaſionally repeated with a view to leſſen the effects of irritation.

On the ſixth day, as the bandages and dreſſings had become diſagreeable from the diſcharge, they were carefully removed. The pus was found to be moderate in quantity, and of a good conſiſtence; the wounds looked well; and the parts, notwithſtanding they had been much bruiſed, had already begun to unite. The ſame kind of dreſſing was applied, and in the ſame manner as before.

On

On the ninth day from the accident the dreſſing was again repeated. I had then the pleaſure to find the union in ſeveral places ſufficiently complete to inſure a retention of the adjacent parts with a bandage leſs ſtrict than the one that had at firſt been applied. The wounds continued to look well, and to diſcharge a good pus; the patient was free from much pain, except a little upon the application of the dreſſings: he reſted well, and began to take conſiderable nouriſhment, the febrile ſymptoms gradually ſubſiding.

From this time we began to dreſs the wounds every day, and continued ſo to do till the month of December following, when the whole (except a wound upon the external orbit of the injured eye) was firmly cicatriſed. A number of exfoliations and ſome ſmall ſplinters of bone came away from this wound on the orbit, and occaſioned it to be kept open a conſiderable time; as was alſo a large orifice in the palate, from whence a conſiderable exfoliation, that ſeemed to be a portion of the ſeptum naſi, came away.

From the time of the accident the patient loſt the ſight of the eye on the injured ſide; and the decay of the other was gradual, without

out any inflammation or pain. In other reſpects he is perfectly well.

Auguſt 2, 1791.

III. *Caſe of a Boy whoſe left Leg and Thigh, together with Part of the Scrotum, were torn off by a Slitting Mill. By the Same.*

ON the 24th of November, 1789, a boy, named Miles, aged about twelve years, in paſſing through the ſlitting mill at Kettley, unluckily put the great toe of his left foot between the pinion wheels while the mill was at work. The conſequence was, that the toe faſtened, and the limb was gradually drawn in, and cruſhed as it went, till the mill had reached as near to his body as where the ſartorius muſcle croſſes one of the heads of the triceps. At that inſtant a man, hearing his cries, came to his relief, and forcibly tore him from the machine, by which means the muſcular integuments were ſeparated from his body, together with the whole of the left ſide of the ſcrotum. The other ſide alſo of the ſcrotum was lacerated, together with part of the pyramidalis muſcle,

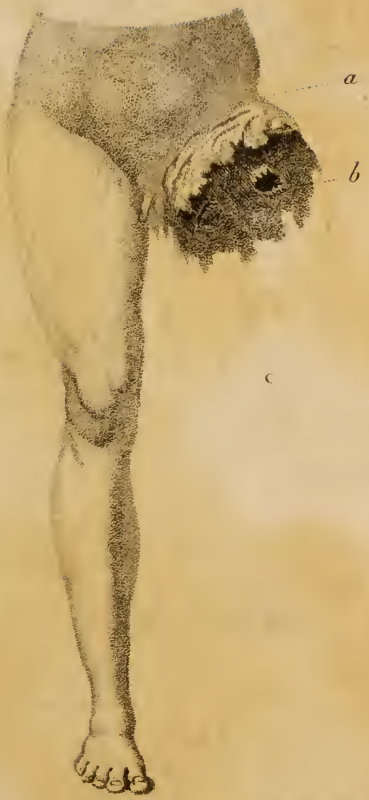
the laceration extending from that side of the pubis in the direction of the line marked in the drawing*; the separation of the external layer of muscles on the posterior side extending as far round as the gluteus medius.

When I attended, which was immediately after the accident, I found him laying on the floor covered with a blanket, and seemingly free from pain, or any anxiety † farther than what appeared to proceed from the trouble his parents were in in consequence of the accident.

In almost any other case the first consideration would have been to have searched for and secured the crural artery; but here a deviation from general practice, in cases of amputation, became necessary, as a diligent search would,

* See the reference at *a* in the annexed plate; *b* points out the part at which the bone was separated; and *c* the lacerated remains of the fascialis and glutæus maximus muscles.

† An extraordinary instance to the contrary of this I saw in the memorable action on the 12th of April, 1782, on board the Ardent, (at that time a French ship) in a man who received a wound from a shot which took off the right thigh in a similar manner to this; but who became delirious from the moment of the receipt of the injury, and expired in about twelve hours without any remission of the delirium till within a very few minutes of his death.



Ravenhill sculp.

in all probability, have been attended with the utmoſt danger, inaſmuch as the whole of the remaining muſcular integuments, as far up as where the bone was divided, were violently lacerated, and the whole cruſhed together in a maſs. For this reaſon, and as there was no hæmorrhage preſent, I did not think it prudent to remove any part of the adhering muſcles with a view of finding the artery, as the chances in ſuch a caſe ſeemed to be conſiderably againſt the probability of diſcovering it but by a fatal hæmorrhage: and it appeared reaſonable to ſuppoſe that a portion of the artery had been drawn out and carried away with the general maſs in the exertion uſed to free him from the machine; and that this, together with the violence of the preſſure upon ſuch a body in ſo ſmall a ſpace, and the contraction uſual in ſuch caſes, had perhaps (may I ſay undoubtedly had?) cloſed the mouths of the veſſels in the muſcular integuments that remained. The artery, even if it could have been diſcovered, would perhaps have been ſo near the groin as to have rendered the ſecuring it a work of much difficulty, if not totally impracticable, and therefore certainly fatal. For theſe reaſons, and finding (notwithſtanding he had been much

diſturbed by his removal home) no appearance of hæmorrhage, I thought myſelf highly juſtifiable in the omiſſion.

I moreover determined in my own mind not to attempt even a ſeparation of any of the lacerated parts, except ſuch as from their ſituation ſhould be more immediately in the way of dreſſing, and from the removal of which there could be no danger.

He was laid on a mattreſs, and bolſtered as much upon his right ſide as could be admitted with any degree of eaſe; that part of his body was alſo raiſed conſiderably higher than the other. Before the lacerated ſtump was wholly placed together I thought it prudent to take as much care, as the nature of the caſe would admit, to prevent a future hæmorrhage, by endeavouring by ſome kind of ſtricture to leſſen the effects of the blood's velocity on the part. For this purpoſe a broad roller or bandage was paſſed round his body, and properly ſecured; and to this another broad piece was faſtened on the back part near the right os innominatum. The integuments were then placed together, round the end of the bone, and, after being well covered with lint dipped in a mixture of equal parts of camphorated ſpirit of wine and

ſpirit

ſpirit of turpentine, were ſprinkled well with wheat flour, over which another layer of lint pledgits and a ſuitable compreſs were applied. A bolſter was then placed upon that part where the inguinal artery paſſes out of the groin, and the bandage being brought under the right thigh, and carried over the bolſter, was faſtened upon the other hip. The preſſure which this occaſioned ſeemed to be as conſiderable as could with prudence be admitted.

The boy ſeemed to have ſuffered very little fatigue from the dreſſing, and was in good ſpirits. He was permitted to have a ſmall quantity of weak wine and water for the preſent, and was ordered barley water acidulated with lemon juice, and balm tea, for his common drink. In the evening an opiate was adminiſtered, in order, as much as poſſible, to guard againſt ſpaſm, of which there appeared reaſon to be apprehenſive.

On the 25th I viſited him early in the morning, and, contrary to my expectation, found him not only alive, but in excellent ſpirits. There was no diſcharge of blood from the dreſſings; there was a gentle warmth on the parts: he had reſted conſiderably, was free from ſevere pain, and had very little fever.

The whole of these circumstances, so unexpectedly favourable, gave me some hopes, if a discharge could be procured, a kindly separation of the sloughs produced, the fever moderated, and his strength supported, that there might be a chance of his recovery.

A stool was procured by means of a clyster; and he was directed to take occasionally of a saline mixture, to which were added small doses of opium. His diet consisted of sago, boiled rice, chicken broth, and salep.

On the 26th I found that he had rested well; was perfectly sensible; free from pain; had taken considerable nourishment, and appeared extremely composed. His fever, notwithstanding, was a little increased. He was now directed to take liberally of a decoction of bark, and an opiate was administered in the evening.

On the morning of the 27th I found him complaining of a soreness of the parts; he was sensible; had rested considerably; but did not appear so perfectly composed as hitherto; his fever, however, was much abated, and upon turning down the dressings I found the appearance of matter beginning to form.

On the 28th the patient was apparently weaker. He had passed a restless night; com-

plained much of thirſt and head-ach; and was frequently ſeized with ſlight ſhivering. He had had one ſtool ſince yeſterday, and now took red bark in ſubſtance, added to the decoction, with elixir of vitriol; and drank port wine.

On the 29th I found that he had had a reſtleſs night, and had been at times delirious. In the morning, however, he took nouriſhment, and ſeemed eaſy and compoſed, his pulſe indicating no very great degree of irritability: he ſpoke at the ſame time ſenſibly, though faintly; but died that day about noon.

This caſe, though it may not be capable of much uſeful application, ſeems to be highly deſerving of being recorded as a curious and extraordinary fact. I can find only two inſtances of an accident at all analogous to it in books. Of each of thoſe the event was ſucceſsful; but as in both it was the arm inſtead of the thigh that was torn off, it may, perhaps, be reaſonable to preſume that a greater degree of danger attends ſuch an accident in the lower than in the upper extremities of the body. One of the two caſes is that deſcribed by Mr. Cheſelden in his Anatomy of the Human

Body *, (where he has given a figure of the patient), and by Mr. Belchier in the Philoſophical Tranſactions †, of Samuel Wood, a Miller, whoſe arm, with the ſcapula, was torn off from his body by a rope winding round it, the other end being faſtened to the coggs of a windmill. This happened in the year 1737.

The other caſe occurred, in 1776, to Mr. James Carmichael, Surgeon at Port Glaſgow, and is inſerted in the fifth volume of Dr. Duncan's Medical Commentaries. The ſubject of it was a girl, three years and a half old, who was entangled, with an apron pinned about her ſhoulders, by the ſpindle of a barley mill, going at its full career ‡, and twiſted round it with equal velocity. In this caſe the left arm was torn off an inch and a half above the elbow, and the muſcles and integuments were much lacerated higher up.

It is worthy of remark, that in neither of

* Sixth Edition, 8vo. London, 1741. page 321.

† Vol. XL. page 313.

‡ From an accurate calculation, Mr. Carmichael found that the ſpindle of the mill flew round 140 times in a minute, when working with its full force.

theſe

theſe two caſes, any more than in the one I have related, was there a diſcharge of blood. In the Miller a cure was completed without the leaſt appearance of hæmorrhage, and without a ſingle blood veſſel having been taken up; and Mr. Carmichael relates of his patient, that when he firſt ſaw her, an hour after the accident, he was aſtoniſhed to find that ſhe had not loſt a ſpoonful of blood. How long the abſence of hæmorrhage would have continued in this caſe could not be determined, as the injury done to the parts above the elbow rendered the amputation of the arm at the ſhoulder neceſſary, as affording, ſeemingly, the only probable chance of ſaving the life of the patient. The operation was accordingly performed, and the cure completed in little more than two months.

Auguſt 2, 1791.

IV. *Caſe*

IV. *Case of a fungous Enlargement of the Extremity of the female Urethra; with Remarks. By Mr.* T. Hughes, *Surgeon at Stroud Water in Gloucestershire.*

IN the month of May, 1769, my advice was desired for a young lady in the eleventh year of her age, and of a very thin habit of body, for a disorder first taken notice of above three years before, within a few days after her having taken a purge which had operated smartly. A surgeon, who was consulted soon after the disease appeared, had given it as his opinion that it was a prolapsus uteri, and accordingly advised a bit of cork to be worn as a pessary. This occasioned so much pain, that it was laid aside after having been used a few days; from which time she wore only a bolster of linen sustained by a bandage. From the beginning there had been a discharge from the part, which her friends imagined kept her thin: they shewed me her linen, and I observed that it was stained to a considerable extent with a bloody serum. She sometimes complained of pain in the part, as if knives were running through it, and more so of late than in the beginning

ginning of her diſorder. At firſt ſhe felt ſome pain in making water, but not lately: her mother thought that ſhe was unable to retain her urine long after the inclination to void it came on. In general ſhe did not ſuffer ſo much as to prevent her uſing a good deal of exerciſe, except on horſeback, which gave her conſiderable uneaſineſs. She otherwiſe enjoyed a pretty good ſtate of health.

Having received this account from her friends, I examined the patient, and found a ſubſtance appearing juſt without and filling up the os externum: it was of a red colour, and of a ſoftiſh, ſpongy texture, with an irregular, jagged ſurface; was ſore when touched; and a bloody ſerum oozed from it. It was ſomewhat contracted at its baſe, which was evidently attached anteriorly to the groove a little below the clitoris, its poſterior part lying looſe on the poſterior part of the os externum and entrance of the vagina; it could not be, therefore, a prolapſus uteri. While the labia were held aſunder by an aſſiſtant, I raiſed the fungus towards the pubis over a bent probe, which gave me an opportunity of examining its poſterior part, and of knowing that the meatus urinarius was not behind it; and by deſiring the patient to make

make water, which paſſed through the center of the fungus, and by introducing a probe through the opening into the urethra, I was ſatisfied that the excreſcence ſprang from the whole circumference of the meatus urinarius, or extremity of the urethra itſelf; from which it appeared to be extended about half an inch. The cuticle, or membrane of the vagina, did not ſeem to be continued farther than where the urethra naturally terminates. The mother told me that the ſurface of the tumour at firſt was not jagged, but ſmooth.

I gave the friends my opinion, that the tumour was not formed by the uterus; that it was an excreſcence; and that a cure could not be expected but from extirpation. This they were deſirous of having performed; but being apprehenſive, on account of the cloſe connexion of the fungus with the urethra, that ſome troubleſome ſymptoms might ariſe in conſequence of the operation, I deſired them firſt to take farther advice. After ſome deliberation, they choſe to have the caſe repreſented to the late Mr. Donne, of Bath. He concurred with me in the neceſſity of the operation; he thought that much trouble would not occur afterwards; ſaid that a tent of lint dipped in oil might be introduced

introduced into the urethra; but did not conſider it as very neceſſary, obſerving that the urine would of itſelf keep the paſſage open.

I ordered a gentle purge to be taken on the day preceding the operation, which was performed on the 23d, and in which I had the aſſiſtance of the late Mr. Cooper, Surgeon at Wotten-Underedge, with whom I was at that time in partnerſhip.

The patient having made water, and being conveniently placed and ſecured, a ligature was paſſed through the body of the fungus, by means of a large crooked needle, and a loop formed, by which I was enabled to draw the fungus a little forwards and keep it ſteady; and the border of the fungus being occaſionally held aſide with a hook, I was enabled the more eaſily and expeditiouſly to remove the fungus, which was carefully done with a very ſmall knife, the inciſion being made as near as poſſible to that line, which ſeemed to diſtinguiſh the fungus from the urethra, by the termination of the cuticle or membrane of the vagina. The bleeding, after continuing pretty freely for a few minutes, ſtopped of itſelf. A bit of lint ſqueezed out of olive oil, and retained by a pledgit of white cerate, compreſs,

and

and bandage, was all the dreſſing. The patient was put to bed, and directed to be kept on a cooling liquid diet.

On examining the fungus after the operation, it appeared about the ſize of the nipple of an adult; its anterior part being expanded, formed, as it were, a little cup, with its border indented like a cock's comb, having a hole in its bottom, which was the orifice of the urethra, which ran through the body of the fungus: the internal membrane of the urethra was continued to the edge of the indented border, which was of a deeper red colour and ſofter texture than the other parts of it. Before the operation the meatus urinarius was covered by the ſides of the border folding over each other.

The patient made water ſoon after ſhe was put to bed, and with but little ſmarting; and again twice ſhe voided a little urine ſome time afterwards. In the afternoon, four or five hours after the operation, ſhe began to be very uneaſy from ſtrangury; and two or three hours later I found her in great pain and uneaſineſs from a conſtant inclination to make water, without being able to void a drop. Her pulſe was quick; ſhe looked rather hot; there was a conſiderable tumour above the os pubis; nothing appeared

appeared amiſs about the wound, which was of a darkiſh red colour, and the adjacent parts did not ſeem to be much ſwelled, although the meatus urinarius could not be diſtinctly ſeen. For three hours flannels wrung out of an emollient fomentation were applied to the pudenda and hypogaſtrium; ſhe took of a mixture of nitre and ſpermaceti, and drank freely of barley water with gum arabic. At ten in the evening, the pain increaſing, and the tumour from the diſtention of the bladder riſing very faſt, ſo as to reach almoſt to the navel, and being very hard and ſore to the touch, ſhe was put into a ſemicupium, in which ſhe ſat ten minutes; during which time, and for a few minutes afterwards, ſhe was free from pain, but could not void a drop of urine. I then introduced a ſmall catheter, without pain or difficulty *, and drew off a pint and a half of urine, highly tinged with blood. The diſtention of the bladder was entirely removed; ſhe received immediate eaſe, and preſently fell aſleep. In about three hours ſhe awaked with an inclination and

* Although I could not diſtinctly diſcern the orifice of the urethra, the groove below the clitoris and the wound proved a ſure guide for the catheter.

inability

inability to make water. I immediately drew off the ſame quantity of urine as before, which was leſs tinged with blood. The catheter met with a ſlight obſtruction at the meatus urinarius. From this time to the 27th ſhe made water without the leaſt difficulty, and, excepting a ſlight ſoreneſs of the part, had no complaint. The dreſſing was renewed as often as neceſſary, to prevent any inconvenience from its being wet with urine.

On the 24th, the day after the operation, the urine was of a natural colour; the blood, with which it was before tinged, flowed moſt probably from the wound into the bladder. The orifice of the urethra was now obſervable.

On the 26th the wound was of a very little more florid colour than the adjacent parts. Obſerving a little riſing on one ſide of the meatus urinarius, not larger however than the fourth part of a grain of wheat, which ſeemed to be an unevenneſs left by the knife in the operation, but being fearful it might increaſe in bulk, I thought it prudent to touch it with the lunar cauſtic, and apply dry lint. She was permitted to ſit up, and to eat a little ſolid food.

On the 27th ſhe felt more ſmarting in making water; the part was more ſore, and ſeemed a little

a little inflamed, which I attributed to the cauſtic, and thought it would ſoon go off; but very early the next morning a meſſenger was diſpatched for me in great haſte, on account of her having a return of the ſuppreſſion. She had paſſed very little urine from the time I was with her, about noon of the preceding day, and for ſome hours had been in great pain. I found, by the tumour in the hypogaſtrium, that the bladder was diſtended as much as in the former ſuppreſſion.

As ſhe had ſo readily obtained relief before from the catheter, after other means had proved ineffectual, I attempted, without heſitation, to introduce it now; but the obſtruction at the meatus was ſo great, that, with the degree of force which I thought I might venture to uſe, I could not overcome it. The attempt gave very great pain, and was followed by a conſiderable bleeding from the parts, which were much ſwollen: the bleeding, however, ſoon ceaſed. This diſappointment gave me and the friends of my patient much uneaſineſs.

As ſhe had been two days without a ſtool, I threw up an emollient clyſter, which ſoon produced a copious alvine dejection; but the ſuppreſſion of urine continued. She was ſoon after

placed in the ſemicupium, in which ſhe continued fifteen minutes, and was eaſy.

While theſe things were doing, I revolved the caſe much in my mind: in particular, I conſidered how eaſily the catheter paſſed when I firſt uſed it immediately after her coming out of the ſemicupium, and that it did not paſs quite ſo eaſily ſome hours afterwards. Encouraged by this reflection, I hoped that I might again ſucceed after the ſemicupium; and therefore reſolved to make the attempt, and to leave the catheter in the bladder, if it ſhould ſucceed. For this purpoſe I cut off the catheter, ſo as to make a canula of a convenient length, and by ſome little contrivances prepared it for its being ſecured in the urethra. The ſuppreſſion not being at all relieved by the ſemicupium, I introduced the canula, which met with ſome reſiſtance at the meatus, but occaſioned no hæmorrhage, and drew off a pint and a half or a quart of urine, with the ſame relief as before. A cork was put in the canula, which was ſecured from ſlipping by tapes faſtened to a bandage round the waiſt. I directed that ſhe ſhould be kept very quiet in bed, lying on her back; that the canula ſhould not be removed, unleſs it occaſioned pain; and that the cork

ſhould be taken out when ſhe had an inclination to make water.

As the friends of the patient imputed this return of the ſuppreſſion to her being indulged in ſitting up, and eating ſolid food, though ſparingly, ſhe was again confined to a liquid diet; but I then thought that it was chiefly owing to the irritation brought on by the uſe of the cauſtic on the 26th.

My patient ſlept from ſeven o'clock this morning (the 28th) till noon, when her mother drew off the urine by the canula, according to my direction; but ſoon afterwards complaining of uneaſineſs, and ſome coagulated blood coming from the part, the canula was removed. She was eaſy after the diſcharge of the blood till about ſeven in the evening, when I found her complaining of pain from inability to make water, and I imagined that recourſe muſt have been again had to the catheter. She ſuffered ſo much from the firſt attempt to introduce it in the morning, that ſhe had a dread of it: ſhe was, however, deſirous of uſing the ſemicupium; in which, after continuing about ten minutes, ſhe grew faint, and upon being taken out her limbs were convulſed; but almoſt immediately on being laid on the bed ſhe

fell aſleep, and ſlept till three or four o'clock the next morning, when ſhe awoke much refreſhed, and made water.

In the forenoon of this day (the 29th) the parts appeared free from inflammation; the meatus urinarius was very diſtinct, and its border ſomewhat prominent, ſo that the extremity of the urethra had, in a conſiderable degree, acquired its natural appearance: the little prominence, which had been touched with the cauſtic, remained of the ſame ſize, but did not differ in colour from the adjacent parts. She had by this time made water twice or three times, and was very cheerful. We were, therefore, in hopes, that, by keeping her quiet in bed, confining her to a liquid diet, and occaſionally giving ſome laxative medicine, for ſome days, and by applying nothing capable of exciting pain, we might prevent a relapſe. I was indeed of opinion that it might be proper to make uſe of the canula or bougie, after a few days, when the wound might be ſuppoſed to be nearly healed.

On the 30th, the ſtream of urine appearing to be ſomewhat twiſted, by the little riſing on the ſide of the meatus being turned a little over the orifice, I applied a ſmall bit of fine ſponge

over

over the lint, ſo as to turn its point outwards from the meatus, which anſwered the purpoſe.

On the 1ſt of June there was only a little mucous diſcharge on the dreſſing; the part appeared to be healed, and naturally moiſt. During two or three hours this afternoon ſhe had an inclination to make water, which ſhe voided only by drops, attended with a ſmarting that afterwards went off. The day following, however, when I examined the part, I could not perceive any thing amiſs.

She had not yet ſat up for the laſt ſix days; her belly had been kept ſufficiently open, and ſhe had eaten nothing more ſolid than boiled bread, or toaſt with her tea, and this only for a day or two. As ſhe made no complaint this day, (June 2) I permitted her to ſit up, and to eat a little white meat.

On the 3d the ſuppreſſion of urine returned. As ſhe had had no ſtool for a day or two, an emollient clyſter was thrown up, which returning alone, another of pure oil was given, and this likewiſe came off without any fæces. She ſoon afterwards, however, made water, and was eaſy. There being no ſoreneſs, inflammation, or perceivable obſtruction, the little riſing on the ſide of the meatus being directed for-

wards, I ſuſpected that the veſſels of the part might remain ſomewhat relaxed in conſequence of the previous inflammation, and therefore, diſcontinuing the dreſſing, threw ſome cold water on the part with a ſyringe, and afterwards a very weak ſolution of white vitriol in water, which, producing no uneaſineſs, I ordered to be repeated twice or thrice a day.

On the 4th I was informed that ſhe had had a ſtool the preceding afternoon, and another that morning, when ſhe had likewiſe paſſed ſome urine; that ſoon afterwards the ſuppreſſion returned, and ſhe appeared to ſuffer more pain than on the day before, but that it went off in about three hours.

Being now ſatisfied that, whether the cauſtic, coſtiveneſs, &c., had at all contributed to the ſuppreſſion or not, its returns muſt be owing to ſome other cauſe, and conſidering its returning firſt in three or four days after the uſe of the catheter, then in forty eight, and now in twenty-four, hours, without the uſe of the catheter, I ſuppoſed it to be moſt probably a ſtricture of the extremity of the urethra. I mentioned this to the friends of the patient the next day, (the 5th) and recommended the uſe of the bougie; to which they were averſe, and hoped there would

be

be no occaſion for it, as ſhe was now pretty well. While I was talking with them my patient began to find a return of the ſuppreſſion, and drinking freely of barley water, in hopes of removing it, the bladder filled apace, and in about two hours the pain became very great, and the pudenda began to ſwell. Recourſe was again had to the ſemicupium, in which ſhe ſat ten minutes, and was eaſy; but the pain returned as ſoon as ſhe came out. I would have introduced the catheter immediately, but from her dread of it was obliged to decline it. I threw up ſome oil and opium into the rectum, which was immediately rejected. The bladder was now diſtended to the navel, the external parts prodigiouſly ſwelled, and her pain ſo exceſſive, that her averſion to the catheter abated. Preſently afterwards, as I was about to order the ſemicupium, which I intended to uſe again previouſly to the introduction of the catheter, ſhe was ſenſible of a little urine eſcaping; in a little time the bladder emptied itſelf, and ſhe was eaſy. Flannels wrung out of warm water were applied to aſſiſt the ſubſiding of the ſwelling of the pudenda, which went quite off in about half an hour. I now urged the neceſſity

of uſing the bougie; to which, after ſome heſitation, the friends conſented. A ſmall one was introduced almoſt without her knowledge, and ſecured from ſlipping; and directions were given for its farther uſe.

She kept the bougie in the urethra two hours the firſt day; and on the next two days, when larger ones were uſed, three or four hours. It was afterwards introduced in the evening after ſhe went to bed, and removed in the morning before ſhe aroſe, and in this manner continued about a week. It was then uſed every other night, and laſtly twice a week to the end of the month, when it was omitted. During the uſe of the bougie ſhe, at firſt, had pretty frequent calls to make water, and afterwards was obliged to make water almoſt immediately upon the inclination coming on, which ſymptom went quite off in about a fortnight after the bougie was laid aſide. From the day ſhe began the uſe of the bougie ſhe had not the leaſt return of the ſuppreſſion of urine. On the 12th ſhe rode out on horſeback with a pleaſure ſhe had till then never known, as, before the removal of the fungus, the moſt gentle pace of the horſe gave her pain. Being ſomewhat reduced

duced by the pain and confinement ſhe had ſuffered, ſhe then took a decoction of bark. She ſoon recovered her ſtrength; and it was afterwards obſerved that ſhe grew faſter than ſhe had done before the operation. Five years afterwards ſhe had not perceived the leaſt complaint in the urethra; and I have reaſon to believe that ſhe has felt none to this day.

I had an opportunity of ſpeaking to the ſurgeon who was firſt conſulted in this caſe. He informed me that, when he ſaw it, it was a ſmall, ſmooth, round, protruding body, with a hole in its middle, and was reducible by the finger; and that, from its appearance, and from her mother's account of its being firſt obſerved after taking the purge, he ſuppoſed that what he ſaw was the os internum, the uterus being, as he imagined, forced down into the vagina: he acknowledged, however, that it would ſlip down by the ſide of the cork he had adviſed to be worn as a peſſary.

REMARKS.

Excreſcences from the orifice and from the canal of the female urethra, ſome of which laſt

laſt have acquired ſuch a ſize as to protrude through the meatus urinarius, are related by authors*; in moſt of the inſtances of which the patients ſuffered ſymptoms ſimilar to thoſe excited by a ſtone in the bladder. Morgagni† has alſo mentioned two inſtances where he found, on examining, for other purpoſes, the bodies after death, a projection of a portion of the internal membrane of the urethra, ſimilar to that of the vagina or rectum. Whether or not the ſubjects of them ſuffered any inconvenience from the projection during life he was unacquainted: it would ſeem, from the circumſtances he has mentioned, not to have been great. But I have not met with an inſtance upon record of the whole extremity of the urethra expanded into a fungous excreſcence, like that I have above related; nor has another ſuch ſince occurred in my practice. Whether it was formed like the two juſt alluded to is

* Morgagni, De Sedibus & Cauſis Morborum, ep. 42; art. 42.—Sharpe, Critical Inquiry, p. 162.—Warner, Caſes in Surgery, third edition, caſe 45.—Bromfeild, Chirurg. Obſ. Vol. II. p. 296.—Jenner, London Medical Journal, Vol. VII. p. 160.

† Place cited; and ep. 50, art. 51; ep. 56, art. 21.

perhaps

perhaps uncertain; but the account given of its firſt appearance, and the examination after its removal, ſeem to render it probable.

From the hiſtory of the above caſe may be learned, firſt, How the ſurgeon who was firſt conſulted, and whoſe anatomical knowledge might be ſuppoſed ſufficient to guard him againſt ſuch a deception, was led into the error of miſtaking the orifice of the urethra for that of the uterus, which ſhould teach us caution in making our inquiries, and candour to make allowances for the errors of each other, whilſt "humanum eſt errare."

Secondly, The young ſurgeon, who has not met with better opportunities, may be enabled to form ſome judgment of the exertions of the bladder to overcome an obſtruction to the egreſs of the urine.

Thirdly, There cannot be a doubt that, had a tent been introduced into the urethra immediately after the operation, and continued, at proper intervals, for perhaps a fortnight or three weeks, the ſuppreſſion of urine, the only diſagreeable circumſtance that occurred, might have been prevented. I declined uſing it, partly from Mr. Donne's opinion, and partly from conſidering

conſidering the analogy of the operation, with reſpect to the urethra, to the amputation of the penis; in ſome caſes of which * none was uſed, and by which perhaps I was more influenced than by the inſtance which fell under the notice of Le Dran †, in which, from the want of a canula, a ſuppreſſion of urine ſucceeded the operation.

If it ſhould be thought a matter of indifference whether a ſilver canula, or a common or hollow bougie, had been uſed, I would beg leave to obſerve, that, in my opinion, a ſilver canula would have been leſs likely to have increaſed the inflammation of the urethra conſequent to the operation, and proved moſt convenient for the firſt two or three days; after which the common bougie might have been uſed. Perhaps, at this time, a canula made of elaſtic gum would be preferred to the ſilver one, or might ſerve the purpoſes of both canula and bougie.

Fourthly, Does not the above caſe point out the propriety of the uſe of the warm bath,

* Warner's Caſes, caſe 39.—Gooch's Caſes and Remarks in Surgery, ſecond edition, p. 271.

† Treatiſe of Operations, Engliſh tranſlation, p. 158.

immediately

immediately previouſly to the introduction of the catheter, in all caſes where the urine is required to be drawn off, in which the canal of the urethra is ſtraightened by inflammation or ſpaſm?

Stroud Water,
Auguſt 5th, 1791.

V. *Caſe of Emphyſema, brought on by ſevere Labour Pains. Communicated in a Letter to Dr.* Simmons *by Mr.* R. B. Blagden, *Surgeon at Petworth in Suſſex.*

IN November, 1779, I was a witneſs to a caſe of emphyſema, brought on by ſevere labour pains. As nothing of the kind has ſince fallen within my obſervation, and as I find from a paper of your own, in the firſt volume of the Medical Communications, that theſe caſes are extremely rare, I offer you, with ſome little confidence, for the next volume of Medical Facts and Obſervations, an account of it, drawn up at the time when it happened.

The ſubject of this caſe was a ſmall woman, twenty-five years of age, and this her firſt labour.

bour. The whole pelvis (and the arch of the os pubis in particular) approached to that of the male, and the external parts were remarkably ſmall and rigid. Notwithſtanding the moſt violent and quickly-repeated pains, the child was not expelled till full ſeven hours after the complete dilatation of the os uteri; its head was wonderfully elongated, and all the means of recovery were ineffectual.

In the moment of its expulſion the woman, with inexpreſſible terror, exclaimed, "I ſhall "be ſuffocated." I haſtened to the other ſide of the bed, when I was ſtruck with her appearance, which was entirely altered, her face, neck, and breaſts, being inflated to an amazing degree.

The emphyſema of the upper and fore part of the neck made, on preſſure, the crackling noiſe which characteriſes this affection; but the emphyſema of the face and the breaſts was perfectly hard and unyielding.

I inſtantly bled her freely, which immediately relieved the ſenſe of ſuffocation, and in ſome meaſure diminiſhed the inflation of the face: ſhe was, nevertheleſs, unable to open her eyes till the fourth day.

The

The whole ſwelling ſubſided very gradually, and was entirely gone in about a week, but the crackling noiſe was plainly felt, for nine or ten days, juſt below the clavicles; indeed there was air, in ſmall portions, perceivable in the cellular membrane of the arms for many weeks afterwards.

Friction with oil was recommended from the moment of the attack.

The placenta came eaſily away in about half an hour after the blood was drawn: the patient took a gentle purge on the ſecond day after delivery, and another on the fourth; ſhe had no milk fever, nor any other ſymptom to retard her recovery.

If the bleeding had not given ſuch inſtant relief, the urgency of the ſymptoms would have led me to attempt it, without loſs of time, by inciſion, as practiſed by the late Dr. Hunter (and long before, in an inſtance related by Paré) in a caſe of emphyſema deſcribed in the ſecond volume of Medical Obſervations and Inquiries.

It afterwards appeared that my patient had, for ſome hours, buried her face, during every pain, in the woollen coat of a woman who ſat on the ſide of the bed.

I beg

I beg leave to obſerve, that I have ſince attended the ſame perſon in three labours, and that, although they were all of the laborious kind, nothing emphyſematous occurred in either of them.

Petworth,
Auguſt 30th, 1791.

VI. *An Account of the ſpontaneous Cure of an Aneuriſm. By the Same.*

A Tall, muſcular man, about fifty years of age, was unfortunate enough to have the artery wounded in the opening of the baſilic vein in June, 1788. After a very large quantity of blood had eſcaped *per ſaltum*, a conſiderable degree of preſſure was made on the orifice, and the blood was ſtaid. There was an ecchymoſis that extended from the ſhoulder to the wriſt. A tumour, which had a ſtrong pulſation in it, immediately began to be formed, and continued to increaſe till it equalled the ſize of a common cricket ball, and the limb at the ſame time grew (to uſe his own words) painfully lifeleſs.

It

It had been told him that nothing but an operation could give a chance of preſerving his arm; but as he had formerly lived near Petworth, and had been a patient of mine, he choſe to ſhow me the caſe before he came to a determination concerning it.

When I ſaw him, it was about ſix months after the accident had happened, and I received from him the above account.

On examination, I found the tumour very nearly as he had deſcribed it, ſomewhat leſs indeed than a cricket ball, but hard, and with a ſtrong pulſation in it. The arm was ſhrunk and cold, and the wriſt entirely pulſeleſs.

The patient having repeatedly aſſured me that the tumour had been ſomewhat larger, and the pulſation ſtill ſtronger, I did not heſitate to diſſuade him from the operation, at leaſt for the preſent.

I recommended the conſtant uſe of the fleſh bruſh only to the whole arm, and deſired to ſee him regularly every fortnight.

Within a few weeks the arm grew a little warm; in about three months I could perceive a tremulous kind of motion at the wriſt; the tumour very gradually diminiſhed in ſize, its pulſation grew weaker, and the motion at the

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wriſt ſtronger in the ſame proportion; the hardneſs of the tumour likewiſe increaſed as the tumour itſelf became leſs, ſo that when it was diminiſhed to the ſize of a ſmall apple, it was perfectly incompreſſible: indeed in this ſituation it was ſo long ſtationary, that I began to doubt whether it would ever vary from it; but within the laſt eight or nine months even this extreme hardneſs has gradually abated, and the decreaſe gone on, till the tumour is become no larger than a full-ſized hazel nut, and not harder than a ſteatoma. The pulſe too is now as ſtrong in that arm as in the other; the arm itſelf is as large, and the power of uſing it, unleſs on very laborious occaſions, (which he is cautioned to avoid) nearly equal *.

It is too evident to admit of any doubt that the circulation is principally carried on in its uſual courſe through the artery, and not through the capillary and anaſtamoſing branches of it.

This caſe may perhaps be thought to add ſome little weight to two of the concluſions

* This account, which was written about three months ago, (when I laſt ſaw the arm) is confirmed by another which I received on the 22d of this month.

drawn

drawn by Mr. Ford in his excellent paper * on the ſame ſubject, " that nature is capable of " effecting the cure of aneuriſms ſolely by her " own efforts, and that the cure by nature is a " permanent one :" but although I am unable to form a ſatisfactory idea of the manner in which nature has ſo completely effected the cure in the preſent inſtance, I ſtill hope the caſe may not be altogether unworthy of regard; for I confeſs myſelf of Mr. Watſon's opinion †, that the hiſtory of the diſeaſe is not complete, and that every aneuriſmal tumour will be found to have its peculiarities, and of courſe may afford uſeful information.

Petworth,
October 27th, 1791.

* London Medical Journal, Vol. IX. page 155.

† Medical Communications, Vol. I. page 182.

VII. *Some Remarks on the Anguſtura Bark. Communicated in a Letter to Dr.* Simmons *by Mr.* George Wilkinſon, *Surgeon at Sunderland, Member of the Royal College of Surgeons and honorary Member of the Chirurgo-phyſical Society of Edinburgh,* &c.

MORE than a year having elapſed ſince the date of my former letter * to you on the Anguſtura bark, and the numerous trials I have ſince made of it, together with the liberal communications of ſeveral of my medical friends, having enabled me to ſpeak more deciſively of its effects, I take the liberty of communicating to you the following additional remarks on the ſubject:

Theſe remarks would have been more extended, had I not been anticipated in much of what I might otherwiſe have ſaid, particularly with reſpect to the chemical hiſtory of this drug, by Mr. Brande, in his valuable eſſay on the Anguſtura bark lately publiſhed.

I had made ſeveral experiments to aſcertain the properties of this bark before Mr. Brande's

* See the London Medical Journal, Vol. XI. p. 331.

work

work was announced, and I have ſince repeated many of thoſe he has deſcribed; but as my reſults have been nearly ſimilar to his, it ſeems unneceſſary to relate them. I ſhall, therefore, content myſelf with collecting from my notes ſuch detached facts and obſervations relative to this new remedy as may ſerve ſtill farther to aſcertain its properties, its effects in different diſeaſes, and the doſes and modes of exhibition in which it ſucceeds the beſt.

The taſte of this bark, which is a powerful bitter, has been compared, by many to whom I have ſhewn it, to Columbo root, to camomile, and to Caſcarilla bark; yet in its chemical properties it differs in many reſpects from either of thoſe ſubſtances. In its ſenſible qualities it may be ſaid, in ſome degree, to reſemble the Peruvian bark; though, from experiments, it would ſeem to be ſuperior to it in its antiſeptic powers.

I have been at much pains to render the Anguſtura bark more agreeable to the palate by covering its taſte with different aromatics, ſuch as lemon and Seville orange peel, cloves, cardamoms, nutmegs, compound tincture of lavender, and cinnamon. The two firſt may be uſed with it, to great advantage in this reſpect, in infuſion; cloves or cardamoms ſeem only to add

to its pungency ; while the three latter, particularly cinnamon, render it more grateful to the ſtomachs of moſt patients.

The mildeſt form in which it can be adminiſtered is that of a cold infuſion ; next to this follows the warm infuſion ; but ſo partially does it give out its properties in theſe forms, that the ſame bark boiled (though infuſed before) in a pint of water to two thirds makes a decoction much ſuperior in ſtrength to either of the infuſions.

Alkaline and neutral ſalts render this bark leſs agreeable to the palate.

Acids, particularly the vitriolic, by precipitating its gummy and reſinous parts, diminiſh its pungency. Thus combined it may be better adapted to ſome ſtomachs ; and reſembles the camomile infuſion when united with the vitriolic acid.

With Port, Liſbon, and moſt other wines, if we except Mountain, Frontiniac, and Raiſin, this bark is not very pleaſant ; the three latter, but particularly raiſin wine, have in general been found to be moſt agreeable. Particular inſtances will ſometimes, though not often, occur where wine in general may diſagree : in all caſes, however, I have found it much better to dilute

dilute the wine with an equal proportion of water.

In ſome caſes, as in diarrhœa, dyſentery, &c., where the ſtomach and inteſtines are extremely irritable, ſo as to eject this and other medicines, it may require a ſuitable addition of opium; but in general it will be found to agree beſt in the ſimpleſt form, and to ſit much better on the ſtomach than the Peruvian bark, or any other bitter, provided it be given in a proper doſe, which even in adults I have ſeldom increaſed to more than thirty grains, commonly beginning with from ten to twenty grains of it at a doſe.

What has been obſerved reſpecting the ſimple mode of adminiſtering it has been confirmed to me by Dr. Collingwood, of this neighbourhood, who, in moſt of his trials of this bark, has exhibited it in powder, and that in the moſt ſimple form.

The good effects I had formerly experienced from the uſe of this bark in two caſes of intermittents *, encouraged me to try it in others that have ſince occurred.

* London Medical Journal, Vol. XI. page 336.

The firſt of theſe took place in September, 1790; the ſubject of it was a man, thirty two years of age, who was ſeized with the uſual ſymptoms of fever, accompanied with head-ach, ſlight ſickneſs, and coſtiveneſs. Antimonials were given, in ſmall doſes, at proper intervals, and at the end of about twenty hours his fever went off. On the third day he was attacked with ſhivering, ſucceeded by the uſual ſymptoms of an intermittent. An emetic was now preſcribed: his coſtiveneſs was removed; and he took the Peruvian bark, in ſubſtance, in doſes of two ſcruples, every three hours, mixed with two or three table-ſpoonfuls of a decoction of the ſame. He had one fit afterwards, having then taken three ounces of the bark in powder, and nearly the ſame quantity of it in decoction. The uſe of it was continued, in leſs frequent doſes, for a fortnight, and he then thought himſelf recovered. At the end of the third week, however, he was again ſeized with a rigor and hot fit. The Anguſtura bark was now adminiſtered, in powder, in doſes of from twelve to fifteen grains, in a ſmall quantity of raiſin wine and water, at the ſame periods as the Peruvian bark had been. He never had another fit afterwards, and the whole of the quantity

quantity given was juſt three drachms and a half.

To another patient who fell under my management, and whoſe caſe was alſo a tertian, nearly ſimilar, though leſs violent than the laſt-mentioned one, no other medicines were uſed excepting ſome mild antimonials, and a gentle purge given previouſly to the uſe of the Anguſtura bark, of which he took half an ounce, in powder, in doſes of from twelve to fifteen grains: he had three fits prior to his taking it, but afterwards remained quite well.

In a third caſe of a tertian, the ſubject of which was a female, twenty-eight years of age, this bark proved leſs efficacious; for though it ſeemed to put a ſtop to the fits after having been taken, in ſubſtance, to the amount of a dozen doſes of twelve grains each, yet notwithſtanding the quantity was increaſed to three grains more, the fits again recurred, and the medicine was laid aſide after ſhe had taken ſix drachms of it. This patient, who was ſubject to obſtinate coſtiveneſs, (on account of which a purgative medicine was adminiſtered previouſly to the uſe of the bark) had impaired her health by the too frequent uſe of ſpirits, and took the bark in a very irregular manner, ſo

that

that it could hardly be said to have had a fair trial. The fits afterwards yielded to the use of the arsenical solution, but her general health was not till some time after restored.

Mr. Akenhead, surgeon, of this town, has communicated to me the following account of the good effects of this bark in a tertian ague:

"Some time in July last a robust man, thirty-six years of age, in consequence of exposure to cold from getting wet, was attacked with an intermittent. Before I saw him he had been ill for several days, and had had three or four fits, which recurred every other day. After having administered an emetic of ipecacuanha, I was induced to make trial of the Angustura bark, which I gave him in decoction with a small quantity of compound tincture of lavender, and in doses of three table-spoonfuls every three hours. He had but one fit afterwards, and was perfectly cured; having taken in the whole only a pint and a half of the decoction."

Repeated experience alone can enable us to decide with precision on the comparative effects of the Angustura and Peruvian barks in fevers I have not had many opportunities of this sort

ſince I became acquainted with the Anguſtura bark; but in three caſes of typhus that have come under my obſervation, in the beginning of this year, I can truly ſay, the effects of this bark have by no means fallen ſhort of the Peruvian. One of them was the more remarkable, as the patient at the time of my uſing it was in a very hopeleſs ſtate. His age was ſixty-four years, his occupation ſedentary, and he was of a ſtudious turn of mind. For two or three days prior to my viſiting him he had laboured under languor, decreaſe of appetite, ſlight thirſt, nauſea, and head-ach. His pulſe, when I firſt ſaw him, was quick, feeble, and ſomewhat irregular; his tongue foul, his ſkin dry, and his belly coſtive. A gentle laxative was at firſt exhibited, and after this mild antimonials, but with no apparent benefit. Wine and other cordials were next had recourſe to, and by theſe he ſeemed to be ſomewhat relieved till about the ninth or tenth day, when he was ſeized with a diarrhœa. Opiates and other remedies were now adminiſtered, but to no purpoſe. His ſkin felt cold to the touch; his pulſe ſunk, and his ſtrength ſeemed to be nearly exhauſted. In this alarming ſtate I reſolved

ſolved to try the effects of the Anguſtura bark. The following form was uſed:

℞. Infuſ.* cort. Anguſturæ ℥vj.
Tinctur æ* ejuſdem ℥ſs.
Pulv. ——— ℈j.
Tinctur æ opii guttas xx.
——— — lavend. comp. gutt. xl. M.

Of this mixture three table ſpoonfuls were given every four hours. The firſt doſe gave him great relief, and the next day I found his diarrhœa quite gone, his ſkin warm and moiſt, and his deſire for food returning. He took a proper ſupply of nouriſhment, and at the end of four days was capable of ſitting up; the mixture was continued, and he very ſoon regained his health.

In the two other caſes, the ſubjects of which were females, the ſymptoms of fever were more ſtrongly marked; the general plan I adopted in theſe conſiſted in the exhibition of antimonials, at firſt, in a doſe ſufficient to excite vomiting, and afterwards in ſmaller doſes as relaxants, with a gentle laxative occaſionally. To one of theſe patients the Anguſtura bark, in powder, was given, in doſes of fifteen grains

* See London Medical Journal, Vol. XI. page 333.

in

in a glaſs of white wine and water, every four hours after the firſt intermiſſion, or rather remiſſion, that I could perceive, and which happened on the fourth day. The ſame remedy was afterwards continued, and the patient recovered in a few days. In the other caſe, which was treated nearly in a ſimilar manner, at the beginning, as the former, a remiſſion took place on the third day, and the decoction of Anguſtura bark being then given, put a ſtop to the diſeaſe.

Four caſes of fever in lying-in women have occurred to my notice. All of theſe aſſumed the form of remittents or quotidians, and in all of them this bark was uſed with great ſucceſs. It was chiefly given in infuſion or decoction, combined with the ſaline mixture, during the remiſſions, and ſometimes accompanied with the tincture and a ſmall quantity of the powder. In each of theſe caſes the ſymptoms of fever began to ſubſide ſoon after I had recourſe to this remedy, and its uſe was continued till a complete recovery was effected.

One of theſe patients, and the firſt that fell under my management, was my ſiſter, a perſon of an irritable habit, who had much fever, accompanied with delirium. She had never, at

any

any time, been able to reliſh the Peruvian bark, but took this very readily and without inconvenience.

Another patient, with whoſe ſtomach this bark diſagreed, by inducing an uneaſy ſenſation of heat, took it afterwards by combining with its infuſion a portion of magneſia.

In diarrhœas this bark, ſo far as I can judge from my own trials of it, ſeems to ſtand unrivalled by any other medicine of the ſame claſs that has hitherto been diſcovered.

I could relate ſeveral caſes of recent as well as chronic diarrhœa in proof of this, were not the fact already ſo ſatisfactorily eſtabliſhed by the inſtances given by Mr. Brande from his own experience, and that of Dr. Willan, of its efficacy in complaints of this kind. I flatter myſelf, however, that the inſertion of the two following caſes, communicated to me by two reſpectable medical friends, will not be unacceptable to you.

The firſt of theſe is from Mr. Salkeld, ſurgeon at Durham. The patient was a child, four months old, who had a diarrhœa, of ſeveral days ſtanding, accompanied with gripes and bloody ſtools. About four grains of the Anguſtura bark, in powder, were directed to be

given,

given, at proper intervals, in a ſpoonful of cinnamon water. After the ſecond doſe the appearance of blood in the ſtools ceaſed, and in about two days, by perſevering in the uſe of the medicine, the complaint was completely removed.

For the other caſe I am indebted to Dr. Collingwood, whoſe account of it is as follows:

" A married woman, twenty-five years of " age, was attacked, three weeks after delivery, " with a diarrhœa. Various remedies of the " tonic and aſtringent claſs were employed, " from ſome of which ſhe experienced good " effects, but none of them afforded her per- " manent relief. She continued in this ſtate, " better and worſe, till ſix months had elapſed; " and as the diſeaſe ſtill remained, I adviſed " her to wean the child: this was complied " with, but no good was produced. To re- " peat the variety of means, both of medicine " and diet, that were adopted, would be tedi- " ous. Every thing ſeemed in vain; for, after " a period of ten months from its commence- " ment, the complaint had reduced her to an " extreme extenuation and debility of body; " her appetite was depraved; her eyes appear- " ed ſunk; her complexion was quite ſallow; " her pulſe quick and weak; and her ſtools

" frequently

" frequently amounted to the number of " twelve, fourteen, and latterly to twenty or " more, in the ſpace of twenty-four hours. " When you gave me ſome of the Anguſtura " bark, I muſt confeſs that, before I tried it, I " deſpaired of its ſucceeding in this caſe. The " event, however, agreeably diſappointed me. " I began by the exhibition of an emetic of " ipecacuanha, ſeveral of which had been ad- " miniſtered before. She then took ten grains " of Anguſtura bark, in powder, in rice water, " after every ſtool. The very firſt doſe re- " lieved her, and when ſhe had taken five the " diarrhœa ſeemed to ceaſe, and ſhe recovered " by the repetition of a few more doſes, the " whole of which amounted to a dozen. Her " appetite and digeſtion ſoon improved, and at " the end of three weeks ſhe was perfectly " cured."

In that ſpecies of diarrhœa occaſioned by the quick abſorption of the adeps in children, and which is frequently the conſequence of dentition, though it ſometimes proceeds from other cauſes, ſuch as obſtruction of the meſenteric glands, &c, this bark has proved uſeful, particularly in caſes where the complaint ſeemed to depend on a ſtate of morbid irritability connected

fected with teething. In moſt of theſe caſes there is more or leſs of pyrexia, accompanied with depraved appetite, thirſt, nauſea, and ſometimes vomiting. I have, therefore, generally adminiſtered a mild emetic of ipecacuanha previouſly to the uſe of the Anguſtura bark in ſuch caſes; and where there was reaſon to aſcribe the complaint to viſceral obſtruction I have given, during its uſe, occaſional doſes of calomel.

And here I may obſerve, that this bark is, for ſeveral reaſons, preferable to the Peruvian as a medicine for children: they take it much more readily than they do the latter; and it is leſs apt to diſagree with the ſtomach and run off by the inteſtines, which the Peruvian bark is too apt to do from the large doſes that are neceſſary to produce a deciſive effect.

In the true dyſentery I have had an opportunity of trying it only in one caſe, of a patient who had taken a variety of remedies without any permanent good effect. At the time I firſt ſaw him he had a conſiderable degree of pyrexia, with frequent gripes, and mucous ſtools intermixed with more or leſs of blood. By the uſe of the Anguſtura bark his gripes and evacuations ſoon ceaſed; his appetite returned;

the ſymptoms of fever left him, and he gradually recovered.

The frequent failure of the Peruvian bark (particularly when given in ſubſtance or decoction) in dyſpepſia, has induced many practitioners to combine it, in ſuch caſes, with a number of other ingredients of the bitter claſs; and among thoſe we may enumerate the late Profeſſor Whytt, of Edinburgh, who was often under the neceſſity of laying it aſide, and depending on that efficacious and elegant preparation, his tincture, or on the warmer bitters alone *. In caſes of this kind the Anguſtura bark will be found to have great efficacy, as I can aſſert from my own experience, having adminiſtered it with ſucceſs in numerous inſtances where the Peruvian bark, and other medicines of the bitter claſs, had failed.

The teſtimony of ſeveral of my medical friends, who have tried it in ſuch caſes, is alſo ſtrongly in its favour: my friend Mr. Akenhead, for inſtance, obſerves to me, that "he "has given it a trial in ſeveral caſes of indi- "geſtion with the beſt effects; and that al-

* Obſervations on nervous Diſorders. 8vo. Edin. 1765. pages 328 and 372.

" though he has long been in the habit of ta-
" king the Peruvian bark, and other bitters,
" for a similar complaint, to which he is often
" subject, yet from the benefit he has lately
" derived from the Angustura bark, and the
" ease with which it sits on his stomach, he
" cannot but give it the preference :" and from Mr. Salkeld I learn, that " in a case of dys-
" pepsia, from an immoderate use of spirits,
" in which the Peruvian and Quassia barks, Co-
" lombo root, and other remedies, had been
" tried during at least three months, without
" the least advantage, the patient experienced
" almost immediate relief from fifteen grains
" of the Angustura bark administered twice a
" day." In this case the dose was afterwards increased to twenty-five grains, which sat easy on the stomach, and by persevering in the use of the medicine the patient gradually recovered.

These effects of the Angustura bark confirm the opinion entertained of it by Dr. G. Pearson, who, though unwilling to allow it equal efficacy with the Peruvian bark in the cure of intermittents, considers it " as a medicine that
" will produce the effects of the warm vege-
" table bitters, especially of the camomile, but

" with more efficacy, and more agreeably to " the ſtomach; and that it will conſequently " render all the other articles under the head " of *amara calida* unneceſſary *."

In caſes of debility, or increaſed irritability, whether apparently proceeding from a diminiſhed tone of the ſtomach, or from local affections of certain parts, the Anguſtura bark has appeared to me to produce effects ſimilar to thoſe of the Peruvian bark, but with theſe advantages, that the effects were more immediate and ſudden, and the doſes much ſmaller than thoſe uſually given of the latter bark. Hence I have employed it with much ſatisfaction in ſcrophulous affections; in violent accidents producing inflammation, ſymptomatic fever, weakening diſcharges, &c.; and after ſome of the greater operations of ſurgery.

In theſe caſes I have ſometimes alternately adminiſtered both this and the Peruvian bark to the ſame patient. To me the evidence has conſtantly appeared to be in favour of the Anguſtura; and every patient who took it, whe-

* See a letter from Dr. Pearſon to Mr. Brande, annexed by the latter to his Experiments and Obſervations on the *Anguſtura* Bark.

ther

ther firſt or laſt uſed, preferred it, aſſuring me hey found from it more benefit.

In certain complaints, more eſpecially venereal caſes, where the indiſcriminate and oftentimes improper uſe of mercury ſeems to produce more dreadful effects than even the diſeaſe itſelf, I have given this bark with great advantage.

A gentleman who laboured under a lues venerea, though not accompanied with ſecondary ſymptoms, had rubbed in and taken conſiderable quantities of mercury for the ſpace of about two months. When I firſt ſaw him he appeared greatly emaciated; had an ulcerated mouth, with profuſe ſpitting, hectic heat, thirſt, loſs of appetite, and diarrhœa, accompanied with griping. He had then been for ſome time taking opium and Peruvian bark, but without any apparent benefit; for he got little or no ſleep, and the ulcers in his groin were very painful, and looked unpromiſing.

Laying aſide his other medicines, I adviſed him to take, at bed time, ten grains of the Anguſtura bark, in powder, in a little raiſin wine and water, which doſe was repeated towards morning. At the ſame time I recommended to him a more generous diet than he had of late

been accuſtomed to, together with a moderate uſe of wine. The good effects of this mode of treatment were ſoon conſpicuous; for the very next day he began to have a return of appetite; his diarrhœa and other unfavourable ſymptoms ſoon began to leave him; the ulcers took on an healing diſpoſition; his ſtrength of body returned very faſt; and he gradually recovered.

Mr. Salkeld has mentioned to me the effects of this bark in a caſe of hooping cough. To a girl, ſix years of age, who had been affected with this diſorder ſo much as to produce conſiderable hæmorrhages from the noſe and ears, after having preſcribed for a month, without effect, a mucilaginous mixture of emetic tartar and oxymel of ſquills, ſo as to keep up a gentle nauſea, he ordered an infuſion of the Anguſtura bark, to four ounces of which were added thirty drops of the tincture of cantharides. Of this mixture a table-ſpoonful was directed to be taken three or four times a day. After taking a few doſes the child was much better, and, to uſe her mother's words to Mr. Salkeld, "hardly ever coughed afterwards." The medicine was continued, and the child ſoon got quite well.

Mr.

Mr. Salkeld has found it very efficacious in a case of scrophulous ophthalmia, which had resisted the use of blisters, leeches, and a variety of other remedies, external and internal. A decoction of the Angustura bark was applied as a wash, and cloths dipped in it were kept upon the eyes at night. In twenty-four hours the patient was able to look up, and bear the light, which he had not been able to do for near a month before. The application was continued, and he soon got well.

I myself have since tried it in a girl, twelve years of age, who had a similar complaint, from the same cause, in both eyes. At the time I first saw her she had been almost blind for five weeks; I directed her to apply the infusion to her eyes in the same manner Mr. Salkeld's patient had done, and in three days, without the use of any other remedy, she was able to bear the light, and in a short time was perfectly cured. To this account of its effects, as a topical application, I am able to add, that it has been used as a fomentation in a case of partial gangrene produced by an accident, and with evident advantage, as it soon corrected the fœtor.

In ill-conditioned ulcers, alſo, the powder of this bark has been found of excellent uſe, by acting as a mild eſcharotic; and a ſtrong decoction of it, applied as a waſh, to ſores of this deſcription, has been found of conſiderable ſervice.

Before I conclude this letter I muſt beg leave to obſerve to you, that in every caſe in which I have adminiſtered this bark I have been anxious to give it a fair trial; and with this view have never combined it with any other powerful remedy, or with ſubſtances that could at all influence its effects, except by rendering it perhaps more agreeable to the ſtomach. The reſults of my own experience of its effects are faithfully related; the communications concerning it, with which I have been favoured by my medical friends, who are men of great accuracy and candour, are given nearly in their own words; and I truſt that the trials of others will tend to confirm what has been advanced relative to this new remedy, which I cannot but conſider as a valuable addition to the Materia Medica.

Sunderland,
October 4, 1791.

VIII. *An Account of two Cases of Polydipsia, or excessive Thirst.*

ALMOST all the modern nosologists have introduced into their systems a disease to which, on account of the excessive thirst that forms its characteristic symptom, they give the name of Polydipsia; but in none of the examples of it they have been able to collect does it appear to have been idiopathic; and Dr. Cullen expressly says that it is almost* always symptomatic. A very curious instance, however, of such an affection, apparently depending on a peculiarity of temperament, or what is called *idiosyncracy*, occurs in a woman now living at Paris, of whose case the first account was given, by M. Bessejon de la Chassagne, in

* The words "polydipsia *fere* semper symptomatica est," used by Dr. Cullen, might lead the reader to imagine that he had *sometimes* seen it exist as an idiopathic disease; but the varieties he mentions of it, viz. Polydipsia febrilis, polydipsia hydropica, polydipsia fluxuum, and polydipsia a venenis, are all of them collected from M. Sauvages as instances of symptomatic affection: he gives no example of it from his own experience. — See Synopf. Nosol. Meth. 8vo. Edin. 1785. Tom. II. p. 320.

a letter

a letter which we ſhall here tranſlate from the Paris Journal of May 1, 1789.

" *To the Authors of the Journal* *.

" Paris, April 18th, 1789.

" GENTLEMEN,

" You will intereſt equally the humanity and " curioſity of the Public, by inſerting in your " Journal

* " *Aux Auteurs du Journal.*

" A Paris, ce 18 Avril, 1789.

" MESSIEURS,

" Vous intereſſerez également l'humanité & la curioſité, " en inſerant dans votre Journal l'anecdote ſuivante qui pa- " roîtra, ſans doute, un phénomène. Je me ſuis aſſuré avec " l'exactitude la plus ſcrupuleuſe des faits que j'annonce ici ; " mais je laiſſe aux lecteurs d'en expliquer la nature & la " cauſe.

" Catherine Bonſergent a été remarquée dès l'age le plus " tendre. Une ſoif brûlante, une alteration ſans exemple, " dont elle eſt continuellement tourmentée depuis ſa naiſſance, " ont toujours fixé ſur elle l'attention des obſervateurs. Ses " parens, après en avoir confié les premiers ſoins à une nour- " rice, la retirerent auprès d'eux à ſa troiſième année. Ils " trouvèrent bientôt extraordinaire la conſommation d'eau " qui ſe faiſoit dans leur maiſon depuis quelque tems, lorſ- " qu'enfin ils s'appercurent que leur enfant en buvoit près " de deux ſeaux chaque jour. Ils attribuèrent d'abord à une " mauvaiſe éducation ce qui étoit en effet chez elle un beſoin " ſurprenant,

" Journal the following anecdote, which, with-
" out doubt, will be conſidered as a phenome-
" non. I have aſſured myſelf, with the moſt
" ſcrupulous accuracy, of the facts which I
" announce, but I leave to the reader to ex-
" plain their nature and cauſe.

" Catherine Bonſergent has been remarked
" from her tendereſt years. A burning thirſt,
" a drought without example, with which ſhe
" has

" ſurprenant, mais naturel. En vain ils ont voulu la corri-
" ger de ce defaut par des careſſes ou des menaces, en lui re-
" fuſant ou lui diminuant la quantité d'eau qu'elle buvoit;
" ils ont été bien plus ſurpris encore de la voir chercher ſe-
" crètement tous les moyens de pouvoir ſe ſatisfaire; en été
" avec la premiere eau qu'elle pouvoit ſe procurer, en hiver
" avec de la neige & des glacons, & toujours elle avoit ſoin
" de ſe réſerver de quoi boire abondamment pendant la nuit.

" Les mauvais traitemens que ce beſoin lui attiroit de ſes
" parens l'ont obligée de les quitter. Elle eſt venue ſervir à
" Paris chez des maitres plus indulgens à qui elle n'a pu ſe
" cacher; mais ſa bonne conduite a merité d'eux de n'en re-
" cevoir aucuns reproches.

" A l'age de 22 ans elle s'eſt mariée avec le nommé Fery,
" ſavetier, à qui elle a déguiſé ſon défaut pour l'épouſer.
" Elle a eu de lui huit enfans; il lui en reſte trois, & elle eſt
" enceinte d'un neuvième. Ce qui paroit ſurtout extraordi-
" naire, c'eſt qu'au moment de ſes couches, au lieu d'uſer
" d'alimens & de liqueurs qui ſembleroient plutôt devoir la
" fortifier,

" has been continually afflicted from the time " of her birth, have always fixed on her the " attention of perſons of obſervation. Her " parents, after having entruſted the firſt care " of her to a nurſe, took her home when ſhe " was three years old. It was not long before " they obſerved that an extraordinary quantity " of water was conſumed in the houſe, and at

" fortifier, elle préfère pour contenter ſa ſoif, qui eſt alors " plus brûlante, de boire, preſque ſans interruption, trois ou " quatre pintes d'eau la plus fraîche. Dans les rigueurs de " l'hiver dernier, cette femme enceinte a bu juſqu'à deux " voies d'eau en 24 heures ; & ſon mari, ne pouvant fournir " à cette dépenſe, étoit obligé de ramaſſer de la neige & des " glacons qu'il faiſoit fondre. L'eau, qui s'eſt vendue ſix " ſols la voie, lui coûtoit plus qu'il ne gagnoit de ſon tra- " vail.

" Cette femme n'a jamais fait uſage d'aucunes ſortes de " liqueurs fortes, & s'il lui arrivoit ſeulement de boire un " verre de vin, elle éprouveroit un ſaiſiſſement dans tous ſes " membres, & on croiroit la voir tomber en ſincope ; d'ail- " leurs elle n'eſt pas hidropique, elle jouit même d'une aſſez " bonne ſanté, elle rend naturellement toute l'eau qu'elle " boit ; mais ce qui paroît ſurprenant encore, c'eſt que cette " eau eſt d'une fétidité extraordinaire. Cette femme de- " meure Hôtel des Arts, F. St. Martin.

" Signé BESSEJON DE LA CHASSAGNE,
" Prêtre de St. Laurent."—Journal de Paris, 1 Mai, 1789.

" length

" length they diſcovered that their daughter
" drank, every day, to the amount of nearly
" two pailfuls. At firſt they attributed to im-
" proper education what in reality was the
" effect of a ſurpriſing, though natural, appe-
" tite. It was to no purpoſe that they at-
" tempted to correct this defect by careſſes or
" threats, by denying her water, or leſſening
" the quantity of what ſhe drank; and they
" were ſtill more ſurpriſed to ſee her ſecretly
" availing herſelf of every means to ſatisfy
" her thirſt. In ſummer ſhe drank the firſt
" water ſhe could meet with, in winter ſhe had
" recourſe to ſnow and ice, and ſhe was always
" careful to reſerve as much as would enable
" her to drink abundantly during the night.

" The ill treatment this diſpoſition occa-
" ſioned her to experience from her parents,
" at length, obliged her to quit them; and ſhe
" came to Paris and lived as a ſervant with dif-
" ferent families, who were more indulgent to
" her; for although the infirmity in queſtion
" was not to be concealed, her good conduct
" in other reſpects ſecured her from reproach.

" At the age of twenty-two years ſhe mar-
" ried one Fery, a cobler, from whom ſhe con-
" trived to conceal her complaint till after

" their

" their marriage. She has had by him eight
" children, three of whom are ſtill alive, and
" ſhe is now pregnant with a ninth. What
" appears particularly extraordinary is, that,
" during her lyings-in, inſtead of having re-
" courſe to ſuch food and liquors as would
" ſeem to be moſt likely to ſtrengthen her, ſhe
" chuſes rather, for the ſake of ſatisfying her
" thirſt, which at thoſe times is more intenſe,
" to drink, almoſt without interruption, three
" or four quarts of the coldeſt water. Du-
" ring the ſevere cold of laſt winter this wo-
" man, who was then pregnant, drank to the
" amount of four pailfuls of water in twenty-
" four hours; and her huſband being unable to
" afford the expence of ſuch a conſumption,
" was under the neceſſity of ſupplying her with
" melted ſnow and ice. The price of a load
" (two pailfuls) of water, at that time, was
" ſix *ſols*; and the quantity ſhe required would
" have coſt him more than he earned by his
" work.

" This woman has never made uſe of any
" ſort of ſtrong liquors, and if ſhe drinks
" only a ſingle glaſs of wine ſhe feels an un-
" eaſy ſenſation in all her limbs, and ſeems to
" be in danger of fainting. She is not drop-

" fical;

" fical ; ſhe even enjoys a pretty good ſtate of
" health ; ſhe voids naturally all the water ſhe
" drinks, but her urine is extraordinarily fœ-
" tid. She lives at the Hotel des Arts, Faux-
" bourg Saint Martin.

" Signed BESSEJON DE LA CHASSAGNE,
" Prêtre de St. Laurent."

The facts related by M. de la Chaſſagne ſeemed, if they might be relied on, to afford an inſtance of an affection, at any rate extremely rare, if not altogether without example ; but their value, like that of every other fact, depended on their authenticity. There was a poſſibility that the writer of the account, without any intention of ſtating more than was true, might have been deceived by the patient or her friends, and that the ſtory in queſtion might, on farther inquiry, like too many other extraordinary aſſertions, be found to be greatly exaggerated, or even to have its origin in ignorance or impoſture. A narrative ſo remarkable ſeemed, however, to be deſerving of inveſtigation, and accordingly the Editor of this work ventured to direct the attention of ſome of his medical friends at Paris to the caſe, and to ſolicit

licit their aſſiſtance in aſcertaining the degree of confidence it might merit.

The firſt communication he was favoured with on this ſubject was from M. Tenon, Profeſſor of Anatomy, and Member of the Royal Academies of Sciences and Surgery at Paris, who, in a letter, dated Paris, September 7th, 1790, ſays, "This woman *, Fery, at the "Hotel des Arts, Fauxbourg St. Martin, is "now thirty-nine years old, and pregnant of

* "Cette femme, Fery, Hotel des Arts, rue du Fauxbourg "St. Martin, maintenant en Septembre, 1790, agée de 39 "ans, eſt enceinte de ſon dixieme enfant. Selon elle, de- "puis l'age de quatre a cinq ans juſqu'a celui de ſeize a dix "huit, elle buvoit un ſeau d'eau, c'eſt a dire, dix pintes pe- "ſant chacune deux livres de ſeize onces par jour; depuis "cette epoque elle en a bu conſtamment deux ſeaux & quel- "que fois trois par jour de vingt quatres heures. A chaque "coup elle boit un peu plus d'une pinte. Sa ſanté n'en pa- "roit point alterée; ſeulement elle reſſent un peu de chaleur "a la levre inferieure, & qui en même temps la durcit. A "la moindre indiſpoſition la ſoif diminue.

"Cette femme n'a conſervé que deux enfans. Le plus agé "a ſeulement huit a dix ans. Ils ne partagent point l'in- "commodité de leur mere.

"Cette femme enfin eſt de moyenne ſtature; maigre; & "blonde tirant ſur le roux. J'ai fait prendre ces renſeigne- "mens par une perſonne ſure; on les tient de la malade elle "même; mais je ne garantis pas qu'elle n'en ait impoſé."

"her

" her tenth child. According to her own ac-
" count, from the age of four or five years, to
" that of ſixteen or eighteen, ſhe drank one of
" our pailfuls of water, that is to ſay, ten
" quarts, (or Paris pints) each weighing two
" pounds of ſixteen ounces, daily. Since that
" period ſhe has conſtantly drank twenty quarts,
" and ſometimes thirty, in the ſpace of twen-
" ty-four hours. Every time ſhe drinks, ſhe
" ſwallows rather more than a quart. Her
" health does not appear to be affected, only
" ſhe experiences a little heat in her under lip,
" which at the ſame time hardens it. When
" ſhe is in the leaſt indiſpoſed her thirſt dimi-
" niſhes.

" She has reared only two children: the
" eldeſt is not more than eight or ten years
" old. Neither of them partake of their mo-
" ther's complaint.

" This woman is of a middle ſtature;
" lean; and of a fair complexion, inclining
" to red.

" I have employed a perſon on whom I can
" depend to procure for me theſe particulars,
" and he has them from the patient herſelf;

" but I cannot be ſure that ſhe has not impoſed " on him *."

The next account the Editor received of this caſe was from Mr. William Maiden, of Stroud in Kent, an ingenious ſtudent of phyſic, who

* To the information here given, relative to the woman in queſtion, M. Tenon adds the following inſtance of Polydipſia from his own experience: — " This fact," ſays he, " re- " minds me of another that has occurred to me in the courſe " of my practice. An Advocate, who was eagerly engaged " in hunting, and much heated, happened to fall into a ri- " vulet. To this accident ſucceeded a thirſt, which induced " him to drink from eight to ten quarts daily. At the end " of three months, during which this complaint laſted, he " came to Paris, and was cured chiefly by the uſe of a cha- " lybeate water.

" There is another inſtance of exceſſive thirſt occaſioned " by antimony. This laſt fact is by Wepfer.—See the *Col-* " *lection Academique*, Tome VII. page 584." — " Ce fait " m'en rappelle un autre qui s'eſt preſenté a moi dans le cours " de ma pratique. Un Avocat, entrainé par la chaſſe, & " etant en fueur, tomba dans un ruiſſeau. A cet evenement " ſucceda une ſoif qui le portoit a boire environ huit a dix " pintes par jour. Au bout de trois mois que duroit cet etat " il vint a Paris, & fut gueri par l'uſage de l'eau ferrugi- " neuſe.

" On a un autre exemple de ſoif extraordinaire cauſée par " l'antimoine. Cette derniere obſervation eſt de Wepfer; " *Collection Academique*, Tom. VII. page 584."

went

went lately from London to Paris, and who, at his requeſt, viſited this woman in Auguſt, 1791. Mr. Maiden found her rather thin in the face, but ſeemingly in good general health, without any ſwelling of the legs or preternatural enlargement of the belly; and ſhe related to him nearly the ſame circumſtances of her caſe that the reader has ſeen mentioned in the preceding accounts. But Mr. Maiden, who delayed this inquiry till the day before he intended to leave Paris, having been able to remain with her only a few minutes, the truth of the facts ſtill reſted chiefly on the aſſertion of the woman herſelf, and nothing leſs than the ocular teſtimony of ſome intelligent perſon, whoſe accuracy might be fully relied on, ſeemed ſufficient to eſtabliſh their authenticity. Such a teſtimony has, at length, been obtained through the obliging exertions of M. Souville, Phyſician at Calais, and M. Parmentier, Apothecary Major of the Royal Hoſpital of Invalids at Paris, at whoſe requeſt M. Brougniart, who is known to the Editor of this work as a very accurate and ingenious ſtudent of phyſic, readily undertook the inveſtigation of the caſe. The following papers relative to this ſubject, with which we ſhall cloſe our account of the caſe, will ſhow

the ſatisfactory manner in which the facts in queſtion have been aſcertained:

1. *Extract of a Letter from M.* Parmentier, *Apothecary Major of the Royal Hoſpital of Invalids*, &c., *to M.* Souville, *Phyſician at Calais, and Member of the Royal Medical Society at Paris*, &c., *dated Paris, October 27th*, 1791.

" I have delayed, Sir, doing myſelf the ho-
" nour of anſwering your letter till I ſhould
" be furniſhed with the particulars of the caſe
" Dr. Simmons has requeſted of us; and I
" thought I could not do better than to re-
" queſt M. Brougniart to procure them for
" him. You will judge from the incloſed pa-
" pers how well he has acquitted himſelf of a
" commiſſion which I myſelf ſhould have rea-
" dily undertaken, had I not had reaſon to
" hope that it would be ſtill more completely
" executed by phyſicians who, though young,
" are good obſervers *."

2. *Ex-*

* " J'ai attendû, Monſieur, pour avoir l'honneur de vous
" repondre que je fuſſe muni de l'obſervation que le Docteur
" Simmons nous a demandé. Je n'ai crû pouvoir mieux faire
" que de charger M. Brougniart de lui la procurer. Vous
" jugerez

2. *Extract of a Letter from M.* Brougniart, *Student of Physic at the Royal Hospital of Invalids at Paris, to Dr.* Simmons, *dated Paris, October 25, 1791.*

" You * wrote lately, Sir, to M. Souville, " for the purpose of procuring some authentic " information relative to a woman at Paris " who drinks a great quantity of water. You " expressed to him a wish that some person, " whose accuracy could be relied on, might be " engaged to visit this woman, and see with " his own eyes the truth of this fact. M. Sou-

" ville

" jugerez par les pieces c'y jointes s'il s'est bien acquitté de la " commission que j'aurois volontiers fait moi même, sans l'es- " perance ou j'etois quelle serait encore plus completement " remplie par des medecins qui, quoique jeunes, voient bien."

* " Vous ecrivites, Monsieur, dernièrement a M. Sou- " ville pour avoir des renseignemens exacts sur une femme " de Paris qui buvoit une tres grande quantité d'eau. Vous " lui disiez que vous desiriez que quelque personne sure voula " suivre cette femme pendant assez de temps pour voir par ses " propres yeux la verité de ce fait. M. Souville ecrivit a M. " Parmentier & lui envoya votre lettre. M. Parmentier, " avec lequel j'ai le bonheur d'être extremement lié, sachant " combien je desirois trouver l'occasion de vous marquer ma " reconnoissance des bontés que vous avez eû pour moi pen-

 " dant

" ville wrote to M. Parmentier, and ſent him " your letter. M. Parmentier, with whom I " have the good fortune to be intimately con- " nected, knowing how much I wiſhed for an " opportunity of making you ſome return for " your kindneſs to me during my ſtay in Eng- " land, did me the favour to put into my hands " your letter, and at the ſame time engaged " me to make the inquiries you deſired.

" Being perſuaded that whenever the object " is to aſcertain a fact two perſons obſerve " better than one, and muſt neceſſarily inſpire " more confidence, I communicated your letter " to a ſociety who meet for ſcientific purpoſes, " and of which I am a member. The ſociety " joined with me a young phyſician for the

" dant mon ſejour en Angleterre, voulu bien me remettre " votre lettre & me charger de prendre les renſeignemens " que vous demandiez.

" Perſuadé que lorſqu'il s'agit de conſtater un fait deux " perſonnes voyent mieux qu'une & doivent inſpirer plus de " confiance, je communiquai votre lettre a une Société qui " s'occupe des Sciences & a la quelle je ſuis aſſocié ; on " m'adjoignit un jeune medecin, & nous obſervames enſem- " ble, chez moi, la femme en queſtion. Pluſieurs autres " membres de la même Société furent preſens aux obſervations " ainſi que vous pouvez le voir par le rapport ci joint que " j'ai l'honneur de vous envoyer."

" purpoſe of aſſiſting me in the inquiry, and " we ſaw together, in my apartments, the wo- " man in queſtion. Several other members " of the ſame ſociety were preſent during the " inveſtigation, as you will ſee by the annexed " Report, which I have the honour to ſend to " you."

3. *Report* * *made to the Philomatical Society, relative to a Woman who drinks a great Quantity of Water; by M. M.* Bellot *and* Brougniart. *Read at a Meeting of the Society on Saturday the 22d of October*, 1791.

" The Philomatical Society, being deſirous " of complying with the requeſt made by M. " Parmentier,

* *Rapport fait à la Société Philomatique, ſur une Femme qui boit une grande Quantité d'Eau; par M. M.* Bellot & Brougniart. *Seance du Samedi, 22 Octobre*, 1791.

" La Société Philomatique, déſirant repondre à la demande " qui lui a été faite par M. Parmentier au nom du Docteur " Simmons, nous a nommé pour examiner le tempérament " & les habitudes d'une femme qui boit beaucoup d'eau.

" Nous nous ſommes tranſportés en conſequence, Samedi, " 15 Octobre, 1791, au Fauxbourg St. Martin, Hotel des " Arts, chez la femme en queſtion. Ne l'ayant point ren- " contré chez elle, nous allames à la place où travailloit ſon

 " mari,

" Parmentier, in the name of Dr. Simmons, " appointed us to examine the temperament " and habits of a woman who drinks a great " quantity of water.

" We

" mari, après avoir pris auparavant quelques informations " auprès du Portier de la Maiſon, qui furent conformes à ce " que l'on nous avoit deja dit. Nous trouvames cette femme " avec une cruche d'eau à côté d'elle. Nous primes jour, & " il fut convenu, qu'elle viendroit paſſer une journée entière " chez l'un de nous.

" Nous nous reunimes, en effet, Lundi, 17 Octobre, 1791, " & reçûmes de cette femme les renſeignemens ſuivans.

" Catherine Bonſergent, epouſe de Jacques Fery, ſavetier, " demeurant à Paris, Hôtel des Arts, Fauxbourg St. Martin, " paroiſſe St. Laurent, eſt agée de 40 ans. Elle eſt née à " Senlis.

" Elle eſt très blonde ; ſa peau eſt fine & marquée de " taches de rouſſeur. Elle eſt plus maigre que graſſe, & pa- " roit être d'un temperament bilieux. Ses bras ſont plus " maigres que le reſte de ſon corps.

" Elle fut miſe en ſevrage chez ſa grande mère, qui, bu- " vant beaucoup de vin, lui en fit boire auſſi. De retour " chez ſa mère, elle vomiſſoit tout ce qu'elle prenoit. Les " matières qu'elle vomiſſoit étoient noires.

" Dès ſa plus tendre jeuneſſe, elle eut une ſoif très conſide- " rable, & cherchoit tous les moyens de la ſatisfaire. Etant " fille, elle buvoit trois ſeaux d'eau par jour ; étant mariée, " deux ſeaux lui ſuffirent, juſqu'à ſon premier enfant. Alors " elle reprit ſa première doſe de trois ſeaux, juſqu'à ſon qua-

" trième

" We accordingly went, on Saturday the " 15th of October, to the woman in queſtion, " at the Hotel des Arts, Fauxbourg St. Mar- " tin. Not having met with her at home, we " went from thence to the place where her huſ- " band was at work, having previouſly collect- " ed, from the Porter of the Hotel, ſeveral " points

" trième enfant; depuis cette epoque, elle n'en boit plus " que deux dans les 24 heures. Lorſqu'elle eſt malade, elle " n'a plus la même ſoif; & lorſqu'elle ne boit point autant " qu'elle le deſire, elle ſe porte mal.

" Lorſqu'elle eſt en couche elle à beaucoup plus ſoif qu'à " l'ordinaire.

" Elle n'a pas plus ſoif en été qu'en hyver.

" Les choſes ſalées, qu'elle n'aime pas à manger, ne l'al- " tèrent pas plus que les autres alimens.

" Sa ſoif ſe fait ſentir par une défaillance d'eſtomac, ſem- " blable à celle que l'on eprouve lorſqu'on a faim. Elle a la " bouche pateuſe, & ne pourroit, dit-elle, avaler un morceau " de pain.

" Lorſqu'elle a bû elle ſent vers la region de l'eſtomac un " froid aſſez conſidérable, qui la fait friſſonner pendant quel- " que temps; ce qui l'oblige d'être continuellement auprès " du feu, pour peu qu'il faſſe froid.

" Cette femme a la lèvre inférieure aſſez groſſe & couverte " de croutes. Cette lèvre lui cuit & lui elance beaucoup, " ſurtout en été. Elle eſt ſujette à avoir des hemorrhoides qui " ne fluent pas; alors elle n'a plus mal à la lèvre.

" Elle

" points of information which agreed with " what had already been told to us. We found " the woman with a pitcher of water by her " ſide ; and a day being appointed for the pur-

" Elle a eu onze enfans en dix couches. C'eſt depuis ſon " premier enfant qu'elle a des hemorrhoides.

" De tous ſes enfans il ne lui en eſt reſté que deux ; preſ- " que tous ceux qu'elle a nourri ont été ſujets à différentes " maladies. Son ainé encore exiſtant à une maladie de la " peau, ſemblable à la gale, mais qui n'eſt cependant pas con- " tagieuſe. Le plus jeune, qu'elle n'a nourri qu'un mois, " jouit d'une très bonne ſanté.

" Cette femme eſt la ſeule de ſa famille qui ait une auſſi " grande ſoif.

" Elle ſue aſſez, & urine en proportion de ce qu'elle boit.

" Elle ne crache point.

" Elle ne prend ni caffé, ni vin, ni liqueurs ſpiritueuſes.

" Elle nous a dit qu'elle mangeoit beaucoup, ce que nous " n'avons cependant pas remarqué.

" Cette femme a bû devant nous, pendant dix heures quelle " eſt reſtée avec nous, quatorze pintes d'eau ; ce qui peut " produire environ vingt-huit livres. Elle nous a dit qu'elle " ſe relevoit la nuit toutes les heures & demie pour boire ; ce " qui fait aſſez exactement la voie d'eau que cette femme pré- " tend conſommer dans 24 heures.

" Elle a rendû dix pintes d'urine peu colorée.

" M. M. Bonnard, Lair, & Robilliard, membres de la " Société Philomatique, ont vû cette femme avec nous pen- " dant une aſſez grande partie de la journée."

" poſe,

" poſe, it was ſettled that ſhe ſhould come and
" paſs the whole of it with us.

" We met accordingly on Monday the 17th
" of October, 1791, and received from this
" woman the following particulars:

" Catherine Bonſergent, wife of James Fery,
" a cobler, now living in the Hotel des Arts,
" Fauxbourg St. Martin, pariſh of St. Lau-
" rence, at Paris, is forty years old, and was
" born at Senlis.

" She is very fair; her ſkin is fine, but freck-
" kled. She is rather lean than fat, and ſeems
" to be of a bilious temperament. Her arms
" are leaner than the reſt of her body.

" At the time ſhe was weaned ſhe was placed
" with her grandmother, who, drinking a good
" deal of wine, made her alſo drink it. When
" ſhe returned home to her mother ſhe vomited
" up every thing ſhe took. What ſhe vomited
" was of a black colour.

" From her earlieſt infancy ſhe had a very
" conſiderable thirſt, and ſought every means
" of ſatisfying it. While ſhe was ſingle ſhe
" drank three pailfuls of water a day; after ſhe
" was married two pailfuls were ſufficient for
" her till ſhe was delivered of her firſt child;
" ſhe then returned to her former quantity of

" three

" three pailfuls, and continued it till after the
" birth of her fourth child. Since that period
" ſhe has drank only two pailfuls in the four
" and twenty hours. When ſhe is ſick ſhe has
" no longer the ſame thirſt, and when ſhe does
" not drink as much as ſhe deſires ſhe is ill.

" When ſhe lays in ſhe has much more thirſt
" than uſual.

" She has not more thirſt in ſummer than in
" winter.

" Salted meats ſhe is not fond of eating, but
" they do not render her more thirſty than
" other aliments.

" Her thirſt occaſions a ſenſation at the ſto-
" mach ſimilar to that which is excited by hun-
" ger. Her mouth is clammy, and ſhe is un-
" able, ſhe ſays, to ſwallow a bit of bread.

" When ſhe has drank ſhe feels about the
" region of the ſtomach a pretty conſiderable
" coldneſs, which occaſions her to ſhiver for
" ſome time, and obliges her to be conſtantly
" near the fire whenever the weather happens
" to be at all cold.

" This woman has the lower lip rather thick,
" and covered with ſcabs. This lip ſmarts,
" and at times is very painful to her, eſpecially
" in ſummer. She is ſubject to the blind piles,

" and

" and when theſe take place the complaint in
" her lip ceaſes.

" She has had eleven children in ten lyings
" in. It is ſince the birth of her firſt child
" that ſhe has been ſubject to the piles.

" Of all her children there remain only two.
" Almoſt all of thoſe ſhe has ſuckled have been
" ſubject to different diſeaſes. Her eldeſt, who
" is ſtill living, has a diſeaſe of the ſkin ſimilar
" to the itch, but which is not infectious. Her
" youngeſt child, which ſhe has ſuckled only a
" month, is in very good health.

" This woman is the only one of her family
" who has ſo great a thirſt.

" She perſpires ſufficiently, and her urine is
" in proportion to what ſhe drinks.

" She does not ſpit.

" She drinks neither wine, nor coffee, nor
" ſpirituous liquors.

" She told us that ſhe ate a great deal, but
" we did not obſerve this while ſhe was with
" us.

" This woman drank, in our preſence, du-
" ring the ſpace of ten hours which ſhe remain-
" ed with us, fourteen quarts (or Paris pints)
" of water, which muſt be equal to about
" twenty-eight pounds. She aſſured us that in

" the night time ſhe riſes every hour and a half
" to drink, and this will be found to make
" pretty exactly the load, or two pailfuls, of
" water, which this woman aſſerts that ſhe
" drinks in four and twenty hours.

" She voided ten quarts of urine that was
" nearly colourleſs.

" M. M. Bonnard, Lair, and Robilliard,
" members of the Philomatical Society, ob-
" ſerved, with us, this woman during a conſi-
" derable part of the day."

While the preceding account was preparing for the preſs the following paragraph appeared in the Lincoln Mercury of Friday, December 9, 1791:

" However extraordinary the following cir-
" cumſtance may appear, it may be depended
" on as fact:—A man who lives with Mr.
" John Julyan, of Woodſtone, near Peterbo-
" rough, is afflicted with ſuch an immoderate
" degree of thirſt, as obliges him to drink
" the aſtoniſhing quantity of three gallons of
" water a night, and one gallon a day; and
" what makes this appear ſtill more extraordi-
" nary,

" nary, he has continued this practice twenty-
" three years."

The facts described in this paragraph bore too ſtriking a reſemblance to thoſe he had juſt before received from Paris not to excite in the Editor a wiſh to ſee the caſe more fully and ſatisfactorily inveſtigated. This has ſince been done through the kind offices of Sir Joſeph Banks, Bart., who being acquainted with a gentleman in the neighbourhood of the patient, on whoſe accuracy he knew he could depend, had the goodneſs to tranſmit to him ſome queries from the Editor relative to this ſubject, with a requeſt that he would engage in the inquiry.

In conſequence of this requeſt Mr. Maxwell, the gentleman alluded to, ſent for the man to his houſe, where he remained a whole night, and was carefully attended to. The reſult of this inveſtigation, which ſufficiently eſtabliſhes the truth of the facts, we ſhall here give in Mr. Maxwell's own words.

Extract

Extract of a Letter from Mr. George Maxwell *to Dr.* Simmons, *dated Fletton Lodge, near Peterborough, December* 18, 1791.

" With reſpect to the Water Drinker, who " is the ſubject of your inquiry, and who lives " at Stanground, near Woodſtone, though he " works at the latter place, it happens that Mr. " Beal, the perſon who now looks after my " farm, employed him as a thraſher more than " twenty years ago. His account of this man " is, that he always drank the quantity he is " now ſaid to do, or at leaſt was at that time " reputed to drink it.

" As he reſided three or four miles from " Mr. Beal's habitation, the latter uſed to make " up a bed for him in his houſe, and Mr. " Beal obſerved that at night he always took " a bucketful of water up ſtairs with him.

" I have a labourer likewiſe who has worked " with him, and who ſays that in mowing time " this man always takes four quarts of water " out with him from a pump in the village, " beſides two quarts of beer.

" Theſe

" Theſe accounts being ſufficiently ſatisfac-
" tory as to his not being an impoſtor, I have
" ſent for him, and put to him your queries,
" which I ſhall here ſet down, together with
" his anſwers to each :

Q. 1ſt. " His name, age, occupation, habit
" of body, and general ſtate of health ?

A. " William Read ; in the fifty-firſt year of
" his age ; a labourer ; never coſtive ; gene-
" rally in good health.

Q. 2d. " Whether his thirſt is natural, or a
" conſequence of diſeaſe, and if ſo, at what
" period of life it firſt ſhewed itſelf ?

A. " Not natural, but came on after an ague
" and fever, which confined him a whole win-
" ter, twenty-four years ago.

Q. 3d. " Whether his thirſt is conſtant and
" uniform, the ſame in ſummer as in winter,
" or only occaſional, and varying in degree ?

A. " Always the ſame, when he is well.

Q. 4th. " Whether he drinks any other li-
" quor beſides water ?

A. " Has no objection to other liquors, but
" can ſeldom get any.

Q. 5th. " How much does he uſually take at
" a draught, and how often does he repeat it ?

A. " A quart at a time, and repeats it ſixteen

" or eighteen times in the courſe of a day and
" night.

Q. 6th. " Whether his thirſt is diminiſhed or
" increaſed when his general health happens to
" be affected?

A. " When his health happens to be affected
" he drinks but little; nothing like ſo much as
" the uſual quantity.

Q. 7th. " What is the ſtate of his tongue and
" fauces with reſpect to dryneſs, moiſture, &c.?

A. " No appearance of dryneſs.

Q. 8th. " What quantity of urine does he
" void, and what is the ſtate of it?

A. " He makes water almoſt every time he
" drinks, and as much upon the whole as he
" drinks. He knows nothing of the ſtate of
" it.

Q. 9th. " Does he perſpire much or little?

A. " Very much when he works, but not at
" all in the night.

Q. 10th. " What is the general ſtate of his
" bowels?

A. " No purging, nor any pain in his bowels.

Q. 11th. " Is he the only one of his family
" who has been remarkable for this exceſſive
" thirſt?

A. " Yes.

" The

" The man adds, that he has consulted seve-
" ral medical gentlemen about his complaint,
" but has not been able to get any thing that
" could, in the least, relieve him.

" On Sunday the 18th instant, at two o'clock,
" he ate a hearty dinner of roast beef with my
" servants, and drank a quart or more of beer.
" Contrary to his promise, he went home as
" soon as dinner was over, but returned about
" five, when I ordered him into the room where
" I was sitting, and he drank a quart of water
" at a draught and very greedily. He said he
" had drank three times whilst absent.

" At eight o'clock he supped, and drank a
" quart of small beer.

" At nine o'clock he went to bed.

" Mr. Beal promised to watch him all night.

" At half past nine I went over to Mr. Beal's
" to settle the plan of management, his house
" being at a little distance from mine. It was
" agreed that no water should be left in Read's
" bed room, but that it should be set ready in a
" room below to be carried to him at a quart at
" a time in the night.

" The next morning (Monday), at eight
" o'clock, I found him at breakfast. Mr. Beal

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" informed me that he had carried him the
" water himſelf, and that
" At ten o'clock (the night before) he had
" drank a quart;
" At eleven o'clock, another quart;
" At twelve o'clock, another quart;
" At near three (Monday morning), another
" quart; (all of which he drank greedily;
" each at a ſingle draught);
" Between four and five o'clock, another
" quart, except a little left in the mug.
" At near ſix another quart was carried to
" him, but of this he left about half.
" A ſervant boy who ſlept with him ſays he
" drank the remainder of the laſt quart after
" Mr. Beal left him.
" The patient himſelf ſays he drank a ſeventh
" quart as ſoon as he got up, whilſt Mr. Beal
" was employed in the yard.
" I found him, as I juſt now mentioned, at
" breakfaſt, in the kitchen, eating heartily of
" milk with bread crumbed in it. He ob-
" ſerved to me that he prefers milk to cold
" meat or any thing elſe; that he was not more
" thirſty laſt night than uſual, and thinks he
" uſually drinks as much every night, but that
" never having had his liquor meaſured to him
" before,

" before, he could not ſpeak with certainty in
" the account he gave.

" I examined the water made by him in the
" night. There appeared to be between five
" and ſix quarts of it, and it ſhewed no appea-
" rance of ſediment.

" At nine o'clock the man had finiſhed his
" breakfaſt, having ate a quart of milk and
" bread, and ſome cold meat after it, and
" drank two quarts of ſmall beer, except about
" a gill which we found left in the bottom of
" the laſt jug.

" The facts being thus aſcertained without a
" poſſibility of doubt, I did not think it ne-
" ceſſary to detain him any longer; and for
" my own part I believe all that he ſays on the
" ſubject."

IX. *An Account of the good Effects of Electricity in a Case of paralytic Affection; serving to prove that, in such Cases, the electric Sparks should be taken from the Muscles which are Antagonists to those that are contracted. Communicated in a Letter to Dr.* Simmons *by* William Gilby, *M. D. Physician to the General Hospital at Birmingham.*

I SEND you the following case as an additional proof, to that which I communicated to you last year *, of the good effects of electricity in muscular contractions.

It has hitherto been the practice of medical men to use electricity to the contracted muscles, which is a practice I wish to see laid aside; its effects being to make the muscular fibres contract more strongly: whereas if the electrical sparks be taken from the muscles which are antagonists to those that are contracted, they prove a very powerful and efficacious remedy.

This is a fact which I am desirous of establishing, and this can only be done by a publication of successful cases.

* See the London Medical Journal, Vol. XI. page 385.

Mr.

Mr. W——, aged about thirty years, was ſeized, on the 7th of January laſt, with a ſlight paralytic affection. His mouth was drawn to the left ſide; his ſpeech affected, and it was with difficulty he could take in liquids.

I ſaw him on the 10th, and ordered a bliſter to be applied to the ſpine of the neck; and alſo ſome pills compoſed of camphor and aſſa-fœtida, and a mixture conſiſting principally of *aq. menth. pip.* and *tinct. valer. vol.* Proper doſes of theſe medicines were taken every four or five hours for three days, and the bliſter diſcharged plentifully, but without being productive of much amendment. I therefore reſolved upon drawing electrical ſparks from the muſcles inſerted into the right angle of the mouth. After this had been done twice a day, for three or four days, the patient had ſome power in counteracting the action of the muſcles which were contracted. He ſaid he could ſpeak and take in liquids with much greater eaſe.

On the 19th there was a very viſible alteration for the better. He could bring the relaxed muſcles into action at pleaſure, but could not make them contract ſo far as for the mouth to regain its proper place.

I saw him on the 21st, 23d, and 25th, and was witness to a progressive amendment.

On the 2d of February he had nearly a complete command over the relaxed muscles, so that he could draw the mouth as much to the right side as to the left.

In this, and also in the case of Mrs. G——, inserted in the London Medical Journal, and which I have already referred to, it seems a difficult matter to ascertain whether the disease depended upon an increased power of action in the contracted muscles, or a want of the ordinary power of action in their antagonists.

P. S. Two cases have lately occurred to me; the one of Samuel Locker, and the other of Emanuel Parsons, in both of which there had been a perfect paralysis of the extensor muscles of the fingers for some time. The latter of these is quite cured, and the other nearly so, by drawing electrical sparks from these muscles night and morning. The skin, in both cases, was generally much inflamed by the operation, and often blistered. Emanuel Parsons had been admitted into two of the hospitals in London, but without receiving any advantage whatever.

These

These men are both of them glass cutters, and have been accustomed to work many hours in the day with their hands in cold water.

Birmingham,
November 30th, 1791.

X. *Observations on some epidemical Effects. By Mr.* William Blizard, *F. R. S. and S. A. Corresponding Member of the Royal Society of Sciences of Gottingen, and Surgeon to the London Hospital.*

MANKIND are generally interested in inquiries into the nature of epidemical effects upon the human body: it is, therefore, to be lamented that the labourers have been so few in this field of medical science.

If nature were strictly watched, there might possibly in time be ascertained some connexion and order in epidemical causes and effects; but from the obscurity of many of the operations, in maintaining the various balances among the parts of matter, much industry and attention are necessary in this undertaking. The observations of many men, in various parts, will be required, and great philosophical acumen for arranging and comparing the facts and drawing general

general inferences. The laws of the animal œconomy, and particularly thoſe that direct the conſtant efflux from exhalent arteries, and the continual influx into the abſorbents, ſo expreſſive of the connexion of the body with ſurrounding matter, muſt be underſtood. The weight and temperature of the air, its moiſture, and what elſe it may contain, muſt be continually ſubjects of inveſtigation. The winds too, as affecting the properties of the air, and directing the courſe of matter floating in it, muſt not be leſs regarded: but as all the parts of nature are linked together, are dependent upon, and in their changes affect each other, the powers of the mineral and vegetable kingdoms upon the air and body muſt alſo be conſidered; nor ſhould the influence of the planetary ſyſtem be unheeded: for, doubtleſs, effects as certain, though leſs manifeſt than the ſeaſons and their varieties, ariſe from the courſes of orbs, whoſe diſtances, or lengths of periods of revolution, make them but little the objects of philoſophical attention*.

Accurate

* The meteorological journals publiſhed annually by the Royal Society, and other philoſophical bodies, will, in theſe views, probably, at ſome period, be experienced of invaluable

Accurate inquiries into the nature of endemic diſeaſes, and their gradations of diminution and change from country to country, may alſo throw great light on the nature and power of the many agents in the production of epidemical affections.

Nor ſhould the inquirer be diſcouraged from any conſiderations of difficulty or improbability of ultimate complete ſucceſs; for mankind could not fail of being benefited by more accurate and connected hiſtories of epidemical effects, though the nature of their cauſes ſhould never be unveiled.

In this uncultivated field of inquiry, then, any obſervations accurately made and faithfully recorded, cannot be altogether uſeleſs: and trials of application of the laws of the animal œconomy, in accounting for epidemical effects, may alſo perhaps, at ſome period, be uſeful, either in confirming truth or in expoſing error.

On theſe preſumptions the following ſenti-

luable utility. The Marine Society, deſirous of being ſerviceable to the world in every way compatible with their great deſign, have alſo reſolved on having an accurate meteorological record kept on board their ſhip moored between Deptford and Greenwich.

ments

ments are ventured. The ſubject being involved in much obſcurity, attempts to throw light upon it, though without ſucceſs, may ſurely be pardoned.

" *Quale per incertam lunam ſub luce maligna*
" *Eſt iter in ſylvis.*"

However far the vaſcular ſyſtem be divided, each part may be conſidered as having a function aſſigned to its performance different from that of every other portion. Every line, therefore, of an artery has a degree and kind of irritability by which it is regularly obedient to the quantity and nature of the fluid that paſſes through it. The ſame may alſo, perhaps, be obſerved of the veins and abſorbents; for ſhould proper muſcular coats to theſe veſſels be not allowed, yet cauſes affecting the arteries that ſupply their membranous ſides, or that are ſituated near them, muſt produce ſome change in the offices of the tubes themſelves.

The many kinds and degrees of abſtractions made from the blood, in its courſe through the arteries, and the various additions received in its progreſs in the veins, muſt conſtantly be productive of alterations in that fluid; ſo that in no two parts into which any veſſel can be divided is the fluid exactly the ſame: and thus the blood, in

all the ſeries of veſſels and ſtructures of parts, is determined preciſely as a proper exciter to the degree and kind of irritability of the part to be excited.

The peculiar effects of ſtimulants ariſe then from the peculiar diſpoſitions of parts of the vaſcular ſyſtem; ſo that the veſſels of one organ may be powerfully excited, while every other part, equally ſubjected to the influence of the exciting cauſe, ſhall remain unaffected. Effects of this nature are generally underſtood, and thence claſſifications of the materia medica. The effect diſtinguiſhed by the term ſedative, is undoubtedly as certain and as relative to the ſtates of different parts, as the effects of other deſcriptions of ſtimulants *.

Thus the harmony of the animal machine depends on a preciſe relation of the irritability of the infinite diſtinctions of parts; and on the

* Obſervations ſeem to prove that uva urſi, *e. g.* diminiſhes or alters the irritable diſpoſition of the veſical veſſels. Cantharides peculiarly affect theſe parts, producing contraction and pain. Will it, then, appear extraordinary if a cauſe, or chain of cauſes of a general nature ſhould eventually ſo diſpoſe theſe parts, as that the ſlighteſt incidental matter ſhould excite inflammation and its train of ſymptoms?

condition,

condition, quantity, and motion of the blood as exactly ſuitable to that irritability.

An epidemical cauſe, therefore, that alters the irritability of the veſſels; that changes the nature, quantity, or motion of the blood, as relative to them; or that directly and unuſually acts upon them, muſt produce a change in the diſpoſition or function of an organ ſo affected.

It appears that epidemical cauſes ſometimes act upon parts of the vaſcular ſyſtem, ſo as to render them in an extraordinary degree ſuſceptible of impreſſions from occaſional cauſes*. And that when an occaſional cauſe happens, the effects are determined, and characteriſed, by the organization, ſtate, and function of the affected part†.

It has long been obſerved, that diſeaſes of every kind partake of the nature of the prevailing

* The general irritable diſpoſition of particular parts is oftentimes ſtrongly expreſſed in gouty inflammation of the extremities, rheumatic inflammation of the large joints, whitlow, boil, inflamed eyes, piles, various complaints of the ſkin, &c.: for the ſlighteſt accidental cauſes ſhall in ſome ſeaſons occaſion one or other of theſe complaints very generally.

† The conditions of ulcer, ſcirrhus, cancer, &c., and the progreſs and events of caſes of fracture, wound, &c., experience proves depend in ſome degree on cauſes of general influence not underſtood.

epidemic ſ

epidemic: but when there is no manifeſtation of a reigning epidemic, obſcure cauſes, not equal to the production of a defined diſeaſe, appear frequently to affect conſtantly occurring diſorders, ſo as greatly to diverſify their ſymptoms, and determine their events*.

When occaſional cauſes, and thoſe of weak power, affect bodies of any kind of hereditary diſpoſition, at the ſame time, *generally*, which *individually* have ſeldom at any other period been affected by ſimilar cauſes, there muſt have been a previous change produced by agents of general influence; and thus hereditary diſpoſitions may be increaſed, and alſo diminiſhed, or totally changed through the influence of epidemical cauſes†.

* *e. g.* The general violence of the ſmall pox, from inoculation, is very different at times. The diſpoſition of bodies to produce the diſeaſe is alſo obſerved to be in various degrees; there being ſometimes ſuch repugnance to the infection, that the inſertion of the virus ſhall repeatedly fail in its effects. When the diſeaſe is brought on, under ſuch circumſtances, it is remarked to be proportionally mild in its ſymptoms.

† This is illuſtrated in ſcrophulous habits; of which many are remarked to preſent themſelves at the hoſpital, within ſhort ſpaces of time, principally on account of the ſame preſſing ſymptoms. The more laſting changes in ſuch habits are of common obſervance.

The

The following facts ſuggeſted the foregoing reflections:

In the autumn of 1787 a man was admitted into the London Hoſpital on account of a hurt of the head. After a few days a conſiderable degree of eryſipelatous inflammation appeared over the whole ſcalp. The evacuations were larger than would have been judged proper had the nature of the ſymptom been clearly underſtood. The man died. Eryſipelas ſoon generally appeared both in the hoſpital and out of it; and almoſt every caſe of injury of the ſcalp, however ſlight, was attended with more or leſs inflammation of the eryſipelatous kind *.

In the beginning of the year 1789, in ſeveral recent caſes of ſyphilis, in which mercury was in uſe, diſtreſſing ulcerations originated in the tonſils, which became worſe during the employment of the mineral. On diſcontinuing the mercurial preparations, employing the warm

* Contemporary inſtances of gouty inflammation, frequently obſervable in conſequence of ſlight caſual irritation, ſeem alſo ſtrikingly to evince the power of epidemical cauſes in prediſpoſing parts to be variouſly affected.

bath,

bath, and waſhing with ſoft gargariſms, they all got well *.

The diſeaſe called the Mumps *(Cynanche parotidea)* is underſtood to be frequently ſucceeded by ſymptoms of inflammation in the breaſts of women and *teſtes* of men. A few years ſince this complaint appeared in ſeveral patients at the hoſpital. Not one of theſe caſes was ſucceeded by the different ſymptoms in the ſexes; but at the very ſame time there was a remarkable number of inſtances of inflamed breaſts and teſtes without any known cauſe whatever †.

Hernia humoralis, and ſpaſmodic affections about the neck of the bladder and urethra are ſometimes of general occurrence. In January, 1791, they were common ſymptoms of gonorrhœa. About the ſame time alſo caſes of ſuppreſſion of urine frequently happened without the leaſt ſuſpicion of gonorrhœal taint.

* Theſe ulcerations were widely different from thoſe about the mouth which are of common occurrence in mercurial courſes.

† Inſtances of this kind, and of the retroceſſion of gouty and erythematous inflammation, may poſſibly one day prove ſome kind of ſimilarity of ſtructure or function, in diſtant parts, affected together, or in ſucceſſion, by the ſame cauſes.

n two caſes of ſimple fracture of the thigh, at the ſame time in the hoſpital, without comminution or much contuſion, delirium took place within a few days of the accidents. The like ſymptom occurred at another hoſpital, at the ſame period, in ſeveral caſes of ſimple fracture. In theſe inſtances the delirium ſubſided, and the patients did well, without any other remarkable event.

A diſpoſition to inflammation and abſceſs reigned during the whole of the laſt autumn, and ſtill prevails.

During the months of October and November abſceſſes in the neighbourhood of the bladder and rectum were very common. At preſent the diſpoſition, in reſpect of particular parts, appears to be changed. The extremities ſeem to be more ſtrongly diſpoſed to inflammatory attacks than the perinæum and contiguous parts. Many have been the inſtances that have lately occurred of inflammation, and its conſequences, in the arms, legs, fingers, and toes. In ſome of them the immediate occaſion has been ſo very trifling, that it is no wonder it was ſuppoſed as inadequate to the effect, and that virulence was reſorted to in accounting for the conſequences. This has been

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the caſe, particularly, in thoſe little accidents ſtudents are liable to in their anatomical reſearches. The appearance that is commonly conſidered as concluſive in theſe and ſimilar caſes, there is reaſon to believe ought to be viewed in a very different light. The red ſtreaks that are ſo alarming to thoſe who are ready to admit abſorption of poiſonous matter, are generally no more than expreſſions of extraordinary irritability, the effects of which are propagated in the vaſcular parts, along the ſides of the abſorbents: for they more frequently ariſe from hurts, in which no poſſible virulence can be introduced, than in caſes of inoculation, ſyphilis, &c.*

The inſtances of inflammation in the perinæum were attended with circumſtances that ſeem intereſting, as leading to uſeful diſtinctions.

1. Old urethral obſtruction was one of the diſtinguiſhing circumſtances. The irrita-

* Numerous facts, ſimilar to the following, might be adduced in illuſtration of this remark:—A gentleman received a ſlight hurt in one of his toes; the conſequences were, much pain, red ſtreaks from the foot along the leg and thigh, and a ſmart fever. Means for allaying irritation removed the ſymptoms,

tion, ſo common in this caſe, produced the moſt dreadful conſequences during the period mentioned. The inflammation was ſure to proceed to abſceſs, and ſloughing of the cellular ſuſtance and membranous part of the urethra; ſo that in caſe a diſcharge of the matter did not happen, either by nature or art, before the burſting of the urethra, the urine inſinuated itſelf into the ſurrounding parts, and produced extenſive gangrenous deſtruction.

2. When no obſtruction in the urethra had pre-exiſted, on the membranous part becoming compreſſed either by the ſwelling in the perinæum or the preſence of matter, a difficulty in voiding the urine or total ſuppreſſion was the conſequence. On the abatement of the inflammation, or the diſcharge of the matter, the excretion became as free as before.

3. In ſome caſes, from the want of an external opening, the evolved air, and volatile pungent particles from the putrefied cellular membrane, penetrated very extenſively from the perinæum upwards to the pubis and abdomen, exciting inflammation, a gangrenous tendency, and emphyſema with crepitation to the touch.

In

In one of the caſes that occurred I was miſtaken in opinion as to the cauſe of the ſwelling, &c., about the hypogaſtric region, in thinking that the urine had eſcaped into the cellular membrane. Upon making an ample opening in the perinæum the urine was voided without any trouble, not a drop eſcaping by the wound, and the nature of the ſymptoms was clearly aſcertained*.

Many advantages may be derived from a due conſideration of epidemical diſpoſition.

The nature of ſymptoms that may ſupervene in wounds, and other accidents, will be better underſtood.

The reaſons why certain operations at one time prove generally ſucceſsful, and at another time otherwiſe, will appear.

The periods when particular parts of the body

* On conſidering theſe complaints every one muſt be ſtruck with the care and delicacy neceſſary in the introduction of the catheter. In a caſe of the ſecond deſcription, the moment after an ineffectual bold puſh of the inſtrument, by a young and inexperienced ſurgeon, the urine got into the cellular membrane, and produced mortification ſo rapidly and to ſuch an extent as to terminate fatally, notwithſtanding a large opening in the perinæum, and the aid of bark, wine, and opium.

may more or leſs ſafely bear operations will be pointed out.

The obſervation ſo frequently made at hoſpitals, "That many caſes of the ſame nature "happen together," will be explained.

Why ulcers, &c., throughout an hoſpital, ſuffer a change of condition from favourable to unfavourable, and *vice verſa*, at nearly the ſame inſtant of time, will not appear ſo extraordinary *.

The various effects, at different times, of applications, &c., will be leſs often aſcribed to wrong cauſes.

The power of epidemical cauſes may undoubted derive much additional force, or be diminiſhed, by many circumſtances. The effects of the various degrees and modes of congregation of men in cities and families, and particularly in hoſpitals, ſhould be attentively conſidered, as being highly intereſting, and much requiring elucidation †.

* On a ſudden ſhifting of the wind, for inſtance, to the eaſt from the oppoſite point, I have ſeen almoſt every ſore in the hoſpital preſently aſſume a bad aſpect.

† Accurate analyſes of the air of hoſpitals, ſhips, camps, marſhy parts of land, &c., made at various times, could not fail of proving curious and uſeful.

Vete-

Veterinary ſcience would certainly be advanced by accurate journals of events illuſtrating epidemical influence on animals.

The ſubject of epidemics appears to be worthy the attention of particular ſocieties in different countries. Other branches of philoſophical reſearch have been greatly improved by bodies of men particularly engaged in their cultivation: and the ſame ſucceſs may reaſonably be expected from like exertions in reſpect of epidemical cauſes and effects.

December 22d, 1791.

XI. *Account of a Method of curing Burns and Scalds. By Mr.* David Cleghorn, *Brewer in Edinburgh. Communicated in three Letters to* John Hunter, *Esq. F. R. S. Surgeon Extraordinary to the King, Surgeon General to the Army,* &c., *and by him to Dr.* Simmons.

LETTER I.

To John Hunter, *Esq.*

Edinburgh, 5th Auguſt, 1791.

SIR,

WHEN I had the pleaſure of ſeeing you in London in June laſt, I promiſed, upon my arrival here, to communicate to you my method of curing burns and ſcalds. I have been prevented by buſineſs from performing my promiſe ſo ſoon as I could have wiſhed, but I will now attempt it, and I hope I ſhall make myſelf intelligible to you.

I have already mentioned to you that my firſt application and moſt powerful remedy is vinegar. If the injury is on the fingers, hands, or lower parts of the arms, the application may very properly be made by an immerſion of the parts. Formerly I uſed alſo to immerſe the feet and lower

ower parts of the legs, when injured, in a pail containing vinegar; but although no material bad conſequence enſued from this practice, I found that, by placing the legs in a perpendicular poſture, the ſores were more apt to ſwell and inflame than when they were laid up and ſupported in an horizontal one. When, therefore, the feet or legs are injured, or when the injury falls on the thighs, the body, the face, or head, where immerſion would be inconvenient or impracticable, the method I follow (and which I find very effectual) is to pour ſome vinegar into a plate or flat-edged diſh, and to dip linen rags in the vinegar and lay them or let them drip on the ſores. This operation of alternately dipping the rags and laying them on the parts affected, is repeated ſo quickly, that the parts are kept conſtantly wet, or rather overflowing with the vinegar, and the plates are ſo placed as to receive or catch as much of it as poſſible; and I continue to uſe what falls back again into the plates for ſome time, till it has become ſomewhat vapid, when I throw it out, and pour into the plates a new ſupply of freſh vinegar. I have known two Engliſh quarts of vinegar uſed in this way to a large ſcald on the legs in four or five hours; and if the ſores have a large ſurface,

and

and are on the body, under which the plates cannot be ſo placed as to prevent it from ſpilling, a larger quantity ſtill of vinegar will be needed. So cooling and grateful are the effects of this application while any conſiderable degree of pain or heat remains, and ſo immediately does the uneaſineſs return when it is too early diſcontinued, that the patients themſelves ſeldom fail of giving their active aſſiſtance in this operation of wetting the parts affected.

In ſlight or ſuperficial injuries, by which I mean ſuch as are attended with no excoriation, but with pain, heat, or inflammation, and perhaps with ſmall bliſters, the vinegar, if early and conſtantly applied, is ſufficient to effect a cure without any other application. It almoſt inſtantly gives relief, and in two or three hours, and often in a much ſhorter time, the patient will be quite at eaſe. The application of the vinegar may then be intermitted; but as ſome degree of pain and heat will poſſibly return, and if not attended to might yet produce a ſore, the vinegar muſt be applied as often as any painful ſenſation returns; and to make ſure, it ought to be continued now and then for a day after. In ſhort, it is always prudent, even in theſe ſlight

caſes,

cafes, to uſe the vinegar long and in abundant quantities.

In moſt inſtances, ſuch ſlight injuries, as thoſe I now ſpeak of, are healed without ever breaking out into a ſore; if, however, through neglect of uſing the vinegar ſpeedily, or not continuing it long enough, and in ſufficient quantities, from ſomething peculiar in the patient's conſtitution, or any other cauſe, the injury ſhould degenerate into a ſore, it will readily be healed by the application of chalk and poultices in the manner hereafter to be mentioned.

In ſevere burns and ſcalds which have recently happened, and which are attended with large bliſters, excoriations, or loſs of ſubſtance, the vinegar muſt be conſtantly applied till the heat and pain nearly ceaſe, which will happen in from two to eight hours, according as the injury is more or leſs ſevere. The ſores muſt then be covered with rags or cloths well wetted, which, as often as they dry, or any ſenſation of pain or heat returns, muſt be wetted afreſh with the vinegar for two, three, or four hours.

In the worſt caſes I have ever met with the pain became tolerable ſoon after the vinegar was applied, and in ten, or at moſt twelve hours, the patients

patients were ſo much at eaſe, that in general they fell into a ſound ſleep.

When I firſt began this practice I uſed to keep the wetted rags on the ſores, without any other application, ſometimes for two or three days; but experience ſhewed me, that after the pain and heat peculiar to burns and ſcalds were removed, the vinegar excited ſmarting in the tender excoriated ſkin, and was in fact of no farther uſe: I therefore never employ it longer than twelve hours, excepting on the parts round the edges, or outſide of the ſores, which I foment with it for a minute or two before the dreſſings, to be afterwards mentioned, as long as they continue in any degree ſwelled or inflamed.

The wetted rags being removed, the ſores muſt next be healed with other applications; and the firſt dreſſing I uſe is a common poultice made of bread and milk, with a little ſweet oil or freſh butter in it. I lay the poultice cloſe to the ſore, and uſe no gauze or cambric between them. The firſt dreſſing ſhould remain ſix, or, at moſt, eight hours, and when it is removed the ſores muſt be covered entirely with chalk finely pounded or ſcraped (for, inſtead of pounding the chalk, I generally hold a lump of it over the ſores, and ſcrape it with a knife upon them) till

the powder has abſorbed the matter or ichor from the ſores, and appears quite dry all over them. A freſh poultice is then laid over the whole, and the ſame ſort of dreſſing with chalk and poultice is repeated morning and evening till the ſores are healed.

In ſome caſes, after the ſecond or third day, if the ſores are on a part of the body where it is difficult to keep the poultice from ſhifting, I uſe, inſtead of it, a plaſter, pretty thickly ſpread, of the common white lead ointment through the day, (covering the ſores previouſly with chalk) and chalk and poultices through the night as already directed. I alſo uſe the ſame kind of white ointment, occaſionally, through the day, when I think the conſtant renewal of poultices has ſoftened and relaxed the ſores too much; a circumſtance which, notwithſtanding the abſorbent quality of the chalk, will, at times, in ſome degree happen.

In caſes where there are large bliſters, before I apply the vinegar, I open them with a pin or a lancet in different parts, and gently preſs the water out of them with a linen cloth. The intention of this is to bring the vinegar to act more cloſely upon the burnt fleſh, and I have found it to have an excellent effect.

Whilſt

Whilſt any of the ſkin of the bliſters remains on the ſore, matter will form and lurk under it, which cannot be reached and abſorbed by the chalk. New punctures, therefore, muſt be made at every dreſſing, whenever matter (which muſt be gently preſſed out with a cloth) is ſeen lurking, and as ſoon as the ſkin has loſt its toughneſs ſo much that it can be ſeparated from the ſore without irritating it, which in general is the caſe on the ſecond or third day, it ought to be gently and gradually picked off when the ſores are dreſſed, and plenty of chalk inſtantly laid on to prevent any bad effects the air might have on ſores in a ſtate ſo highly ſuſceptible of injury.

In ſevere caſes, or ſuch as are attended with excoriation or loſs of ſubſtance, when the vinegar is not applied within twenty-four hours of the time the accidents happen, it almoſt always gives conſiderable pain; but if the patient can endure it, the ſores may ſafely be wetted all over for a quarter or half an hour, or even much longer. The ſmarting is no doubt a little irkſome, but it is worſt at firſt, and, at any rate, goes off immediately upon diſcontinuing the vinegar, and leaves the ſores in a much cooler or leſs inflamed ſtate. If the patient, however, cannot or will not bear the vinegar on the raw and tender parts

of

of the ſore, I then cover thoſe parts cloſe with a plaſter of the white ointment, and wet all round them with the vinegar for a quarter or half an hour, or longer. The ointment is then taken off, and the ſores are covered with the powdered chalk, and a poultice laid over all; and they are afterwards to be treated, in all reſpects, till they heal, as the ſeverer ſort of ſores, to which the vinegar has been early applied, are already directed to be, after the pain and heat have left them.

The vinegar I prefer is that made of the beſt white wine; but any ſort that has enough of acid will anſwer, provided there be no admixture of any mineral acid. In ſevere caſes I generally warm the vinegar, before I uſe it, to nearly blood heat, eſpecially in cold weather, and where a great deal of it muſt be employed. When it is applied cold, and in great quantities, it is apt to bring on a chilneſs and ſhivering, which I have always removed readily, by wetting the feet with cloths dipped in warm water, and giving the patient a little warm water to drink, with ſome ſpirits added to it ſo as to be rather ſtronger than good punch. If the arms or hands are badly injured, I keep them, during the cure, always ſlung; and if the legs, I endeavour to ſupport them ſo

as

as to procure as much eaſe to the patient as poſſible.

I am, with much reſpect, &c.

LETTER II.

Edinburgh, 3d October, 1791.

SIR,

AS I did not, in my letter of the 5th of Auguſt, give you ſo full an account of my method of curing burns and ſcalds as I intended, I ſhall now trouble you with ſome additional obſervations on the ſame ſubject.

When I was ſpeaking of the ſeverer ſort of injuries, I omitted to mention that they are more eaſily cured on the face than on any other part. In the worſt I have met with I have never had occaſion to uſe the chalk and poultices, and yet complete cures were always effected without leaving mark or ſcar; and this is ſo far fortunate, as the application of poultices to ſome parts of the face would be very inconvenient. Were the face, however, to be ſo deeply burnt as to occaſion a conſiderable loſs of ſubſtance, or were the injury, though trifling at firſt, (through neglect of the uſe of vinegar) to break out into an ulcer or bad

bad ſore, (a caſe which I never happened to meet with) chalk and poultices, or chalk and white ointment, would no doubt be neceſſary.

The caſes that have occurred to me of injuries of this ſort on the face, were not of the worſt kind; but ſome of them, notwithſtanding, were pretty ſevere; and as it is of particular importance to prevent ſcars on that part, I ſhall ſelect three of them, occaſioned by different ſorts of accidents, and ſtate how I treated them.

The firſt I ſhall take is that of a boy, of four year old, who fell with his face upon a room grate pretty much heated, and left on one of the bars of it the ſkin of both his lips, and of one of his cheeks to the ear. The vinegar was inſtantly applied (cold), and continued without interruption for about four hours, during which time the boy complained very little of pain. The accident happened at ſix o'clock in the evening, and by nine he was quite eaſy; about ten he fell aſleep, and did not awake till morning, although during the night the vinegar was twice applied. In the morning he was free of pain, and continued ſo. The parts, however, were frequently wetted with vinegar for three days longer, and afterwards anointed with white ointment four or five times a day. A thin blackiſh-coloured in-

cruſtation formed, (without the leaſt appearance of matter) which gradually peeled off, and in nine days after the accident happened, a new ſkin, perfectly ſmooth, was ſeen over all, which could only be known from that on the reſt of the face by its being of a deeper red.

The ſecond caſe I ſhall mention is that of a young man whoſe face was burnt by the exploſion of gunpowder. The whole ſkin under his chin and about the ears, of the eyelids, lips, cheeks, &c. was either in bliſters or peeled off. Cold vinegar was immediately applied to the eyelids, (which the patient kept ſhut) as well as to every other part of the face, and it gave immediate relief. The accident happened about eight o'clock at night, and the vinegar was continued till twelve, when the patient was ſo eaſy that he fell aſleep. He awoke once or twice in the night, and wetted his face a little with the vinegar himſelf, and in the morning he was quite free of pain, and continued ſo.

The vinegar was applied for two days longer, and the parts were alſo for thoſe two days, and ſome days after, anointed three or four times a day with a liniment made of linſeed oil and lime water, and by turns, as often with the white ointment. No part of the ſores ſhewed any ten-

dency to feſter. New ſkin formed on different parts without any incruſtation, and on other parts a thin blackiſh one (as uſual) formed, which, in ſix days from the accident, ſcaled off, and new ſkin appeared over the whole face, and not the ſmalleſt mark was to be ſeen, excepting the redneſs of the ſkin peculiar to all newly-healed ſores.

The third and laſt caſe is that of a boy of five years old, who was leaning on a ſmall cord which hung acroſs the front of the chimney for drying clothes, and the cord giving way, the boy fell forwards, and his whole face plunged, from ear to ear, into a pot of water actually boiling on the fire. The accident happened on a Sunday, at one o'clock of the afternoon, and till I ſaw him, which was on the Tueſday following, about noon, the parts had been anointed with linſeed oil. By this time his face was ſo much ſwelled, (particularly his eyelids) and ſo disfigured with ſcabs and bliſters, that the features of a human creature could ſcarcely be diſtinguiſhed. The eyes were entirely cloſed and, as I concluded the boiling water muſt have got into them, I never expected he would ſee again.

His ſkin was hot, his pulſe feveriſh; he had eaten very little; had got no ſleep ſince the accident; was exceedingly fretful, and in great pain.

He was brought to my houſe from a place at ſome diſtance, and was cold and chilly. I placed him near a good fire, ſo as to warm him, particularly his feet. At the ſame time the vinegar was applied (cold) to his face, without intermiſſion, for three quarters of an hour. By this time the patient was conſiderably relieved, and he was carried home, and laid in bed, where the vinegar was conſtantly applied for two hours more, when he fell aſleep, and did not awake for three hours, although the parts (excepting the eyes) were ſeveral times wetted while he ſlept. The vinegar was afterwards continued, in the uſual way, till ten o'clock, and the patient being coſtive, I ordered him ſome boiled pot barley and prunes, which he ate heartily. He ſlept pretty ſoundly all night, in the courſe of which his face was twice or thrice wetted. Next morning he was cool, the ſwelling of his face was greatly ſubſided, and the pain had abated ſo much, that he was no longer fretful or peeviſh. The vinegar was uſed pretty frequently this day (Wedneſday), and the ſores were, beſides, three or four times

anointed

anointed with the liniment already ſpoken of, care being taken not to lay it ſo thick on the eye-lids as to make it run into the eye, leſt the lime in it ſhould injure his ſight. He reſted well this night, and on Thurſday morning he was quite eaſy, and I was happy to find that he could ſee a glimmering of light with both eyes.

The vinegar and liniment were alternately uſed, now and then, during the whole of Friday, when the ſwelling of the face was almoſt quite reduced, and the patient could ſee perfectly with both eyes.

On Saturday and Sunday the liniment and white ointment were uſed, by turns, ſeveral times, and on Monday the cure was complete, nothing then remaining on the face but a little incruſtation, which went entirely off in a few days, and not a mark remained, nor the leaſt weakneſs or foreneſs in the eyes.

From the liniment having been uſed in two of the above caſes on the face, inſtead of the chalk and poultices, and the cures having been ſo immediate and complete, it might be thought, perhaps, that it would be as effectual as they are, were it uſed in their ſtead on bad ſores on any part of the body. To aſcertain this I made a num-

ber of experiments, and found that it had not the effects of the chalk and poultices. When fores were raw and relaxed, on any part of the body or extremities, anointing them with the liniment juſt previouſly to the dreſſing with the chalk, &c., was of ſervice in bracing the parts, and I therefore uſe it now on ſuch occaſions. But in one inſtance of a bad ſcald on the feet, after uſing the vinegar in the ordinary way till the pain had ceaſed, I uſed the liniment by itſelf; and although the ſore had the appearance, in a ſhort time, of cloſing aad healing, there remained matter lurking within, which afterwards broke out, and the ſores became worſe than ever. I was therefore obliged to uſe poultices without chalk for two dreſſings, to dilate the ſore, and then to heal it with chalk and poultice in the uſual way.

The liniment does not appear to be abſolutely eſſential even on the face; for beſides the firſt of the three caſes juſt mentioned, where it was not uſed, and the cure was complete, I have had many other inſtances of the ſame kind; and upon one occaſion, when two young men were badly burnt all over their faces by the ſame exploſion of gunpowder, I firſt applied, to the one, vinegar till ſuch time as the heat and pain had quite abated,

abated, and afterwards the liniment by itſelf; and to the other I uſed the vinegar for two days, and afterwards the white ointment, and they were both healed at the ſame time. As the liniment, however, is neither expenſive nor troubleſome, either in the mode of preparing or applying it, and as I am rather inclined to think that it is of ſome ſervice on the face as well as on a raw ſore, I, of late, always apply it to both in the way I have already mentioned.

It was owing to my being told by profeſſional gentlemen (to whom I was recommending my application) that this liniment was more efficacious in curing burns than any of my remedies could be, that I was induced to make many comparative trials of it with my own method. One caſe, in which I had by accident an opportunity of proving the inferiority of the liniment, being curious, and as I deviated in it a little from my ordinary mode of practice, it may not be amiſs to lay it before you.

A brewer's ſervant was ſcalded on his back and both legs with hot wort, (not boiling.) I was aſſured there were at firſt only a few ſmall bliſters on his legs, and that his back was only red and inflamed. I am confident, therefore, that if the vinegar had been applied imme-

diately, the cure would have been effected in a ſhort time, and perhaps without any ſore. The liniment, however, was applied, and continued for eight or nine days. The patient, as I afterwards learned from himſelf, found no relief from it; every part of his legs and back, which the wort had reached, broke out into ſores, and at the end of nine days after the accident, when I, at the deſire of a friend, went for the firſt time to ſee him, I found him in great diſtreſs. The ſkin was entirely off his legs (excepting behind where the wort had not reached) from the knees to the toes, and in ſome parts the ſores were badly ulcerated, and diſcharged a thin ichor. The under part of the back, and from thence nearly to the anus, was excoriated. It was not, however, ulcerated like the legs, for the patient's waiſtcoat having been on when he met with the accident, had ſaved his back in ſome degree.

His pulſe was quick, but feeble; he had taken ſome purgative medicine, which obliged him to riſe frequently to go to ſtool, and he was ſo languid, that I thought it neceſſary to give him ſome cordial before I began my operations. As I underſtood that he had drank pretty freely when in health, I gave him nearly a glaſs full of brandy,

brandy, diluted with warm water, which recruited his ſpirits greatly: I then covered the whole ſores on the legs thick over with ſcraped chalk till the ichor was entirely abſorbed, and laid poultices over all. This was no ſooner done than the patient ſaid he felt himſelf eaſier.

Here I would not make the vinegar my firſt application, becauſe the ſores on the legs were ſo exceſſively irritable, that the patient could not have endured the ſmarting it would have occaſioned; neither could I attempt covering them with plaſters of the white ointment till I had bathed the edges or outer parts of the ſores, (as I have ſaid I do on ſuch occaſions) for the moſt gentle touch would make them bleed, and the plaſters could not have been laid on and taken off without conſiderable irritation. I therefore deviated from my ordinary practice, by uſing the chalk firſt, as already related; and the event proved that, unaſſiſted by the vinegar, it has powerful effects, which I have on other occaſions alſo experienced.

The ſores on this patient's back, as I have already obſerved, were not ſo bad as thoſe on his legs; they were, however, raw, much inflamed, and painful; and as, owing to the ſtate and ſituation of the ſores on his legs, he could not

not lye in any other poſture than on his back, his ſores there gave me at this time moſt anxiety. I applied the vinegar to them (warm'ſh), which occaſioned at firſt a pretty ſevere ſmarting, but after being continued for ſome time, the parts became leſs ſenſible, and the patient felt very little pain. The vinegar was uſed for about a quarter of an hour; the parts were then covered with chalk, and a plaſter ſpread thick with white ointment was laid over all. I ſhould have preferred poultices to white ointment, had I not thought they would have been more apt to be ſqueezed and ſhifted by the weight of the body.

As the ſeaſon was cold, (January 13th) I wrapped flannel cloths round the patient's legs and feet, above the dreſſings, and left him about one o'clock greatly relieved. I viſited him again at nine at night, and found him pretty eaſy. He had got ſome ſleep; the ſores on his legs had a more kindly appearance; and as they were not ſo very tender and irritable as before, I ventured to wet all round them with vinegar, and then covered them again with chalk and renewed the poultices.

The ſores on the back, which were remarkably better, I bathed well with vinegar for five or ſix minutes, and then dreſſed them with

chalk

chalk and ointment as before. I continued the ſame treatment to the back, morning and evening, and on the 16th, at night, the patient could lye on it without pain. A thin incruſtation formed on the parts and they were completely whole on the 23d.

I had directed that the legs ſhould be dreſſed every morning and evening with the poultices and abundance of chalk, whether I was preſent or not; but the patient's wife entertaining a prejudice againſt the chalk, (in conſequence, as ſhe afterwards told me, of a converſation ſhe had had with a ſtudent of phyſic) ſhe omitted uſing it every time I was abſent at the dreſſings, which happened to be the caſe the three mornings juſt preceding the 28th, and on that morning I obſerved the ſores (though greatly contracted) were too moiſt and relaxed; there was on ſeveral parts of them ſome blackiſh clotted blood, probably owing to the legs rubbing on one another in ſleep; the parts too were a good deal inflamed, and the patient complained of pain. On this occaſion, with a view to invigorate and brace the parts, I wetted the ſores twice or thrice with brandy, and then dreſſed them with chalk and white ointment in the uſual way. The patient felt himſelf eaſy and comfortable,

and

and from this time the cure went rapidly on, the chalk having no more been omitted. The dreſſings with it and the white ointment were continued, morning and evening, and beſides, on two days, viz. the 28th and 29th, about two o'clock of the afternoon, the ſores were covered over with chalk, without renewing the ointment.

On the 30th all was in a manner whole, excepting two parts, rather leſs in ſize than a ſixpence, upon which ſome proud fleſh had grown, and threatened to leave a ſcar. Theſe parts were, previouſly to three or four dreſſings, powdered over with burnt alum, and dry ſcabs formed on them, which gradually diminiſhed, but were not entirely off for above two weeks. The cure, however, may be ſaid to have been completed on the 7th of February, when the man went to his work, exactly twenty five days from the time I firſt ſaw him. Diachylon plaſter was uſed to the ſcabs after the man went abroad to work, till they fell off, and no ſcar, nor mark, except the uſual redneſs, remained.

Dr. James Hay, Fellow of the College of Phyſicians of Edinburgh, (a gentleman of extenſive obſervation and experience, and of too much candour of mind and liberality of ſentiment

timent to think that a valuable diſcovery in the healing art ſhould be diſregarded, and the benefit of it loſt to mankind, merely becauſe it happens to be ſtumbled on by a perſon belonging to none of the medical profeſſions) has always paid particular attention to the accounts I have given him of my cures, and has condeſcended, upon ſeveral occaſions, to viſit my patients, and to ſee with his own eyes the effects of my applications. In particular, he viſited the laſt-mentioned patient again and again, and took the trouble of reconciling his wife to the chalk, which ſhe had been told, as it checked the ſuppuration, would be attended with fatal conſequences. The doctor, was chiefly ſurpriſed in this caſe at the rapid cure of the back, notwithſtanding the patient was obliged to lye on it, and he gratified my feelings not a little by ſaying, that, in the common way of treating ſuch a ſore, he doubted much if a mortification of the back could have been prevented, and that it was his opinion I had ſaved the man's life.

If my remedies really were the means of ſaving this patient's life, in the ſeventeen years practice I have had, I muſt have been acceſſary in ſaving the lives of others, for ſeveral of my patients were in a much worſe ſtate than this.

Beſides

Beſides many people ſcalded with boiling water, broth, ſtarch, &c., I have cured a variety of burns occaſioned by melted lead and braſs, liquid pig iron, red hot bar iron, the flames of ſpirits, burning coals, linen, &c. quick lime, and by the exploſion of gunpowder: and there is no part of the body that one or other of my patients has not been burnt or ſcalded on.

One child, in going backwards, was thrown down by a pot ſtanding on the floor, newly taken off the fire, and almoſt full of boiling broth, and fell into, or rather ſat down in it, and ſcalded, in a very bad manner, his anus, ſcrotum, and parts adjacent, but was healed in a ſurpriſingly ſhort time, the vinegar having been early applied: and a Blackſmith once was relieved and cured, who was in great agony from a ſpark of hot iron which flew into his eye from a piece he was ſtriking on an anvil. In this caſe the vinegar was diluted with water to one half of its ſtrength, and the patient let ſome of it into the eye. He alſo kept the eye ſhut, and bathed it with vinegar of a full ſtrength.

In what manner my applications act, ſo as to prevent marks and ſcars, I do not pretend to explain; but I uniformly obſerve that, when

uſed

uſed in time, they entirely check ſuppuration in all ſlight caſes, and that even in many ſevere ones pus or matter is hardly ever ſeen. In deep burns too, attended with loſs of ſubſtance, the diſcharge muſt appear aſtoniſhingly little to thoſe who have been accuſtomed to ſee ſores cured in the ordinary way. It has been commonly remarked, that burns and ſcalds ſpread or enlarge for eight or ten days; but with my treatment they viſibly contract from the beginning. The new ſkin begins to form round the extremities of even a bad ſore ſometimes ſo early as the ſecond day, and in the middle, where there has been a loſs of ſubſtance, the new fleſh ſhoots up from the bottom rather with a fungous appearance, the ſurface of it being unequal, ſomewhat reſembling heads of pins or the candying of honey, (but of a fleſh colour) and continues gradually to grow till it riſes to the height of the ſound fleſh around it, when the ſkin forms at once without incruſtation. When I began my practice indeed (I do not ſpeak here of the face, my treatment of it and the effects thereof having been always much the ſame) I uſed the vinegar in bad caſes much longer than I do now, and did not apply the poultices for twenty-four hours,

or

or oftentimes more; a dry ſcab, ſtained by the vinegar of a black ink colour, (eaſily accounted for) would then form over all the excoriated places, and under it there was always matter. The poultices which were then applied brought off the ſcab generally in a lump the third or fourth dreſſing, and a very tender bleeding ſore was thus expoſed, which I inſtantly laid very thick over with ſcraped chalk and poultices. After this, the very ſame method was obſerved which I now follow, and the ſores healed without a ſecond ſcab or incruſtation, and without mark or ſcar, as they do now. As I know little of theories, I cannot ſay whether theſe circumſtances, when duly conſidered, will confirm, or contradict, or throw any new light on the received opinion concerning the uſe of ſuppuration in the production of new fleſh; but this I can ſafely affirm, that I have neither advanced any thing that has not actually happened in the courſe of my long experience, nor have I exaggerated, to my knowledge, any of the circumſtances of the caſes I have related, as I truſt you will in due time be convinced of from your own experience.

With regard to diet, I allow my patients to eat boiled or roaſted fowl, or, in ſhort, any plain dreſſed

dreſſed meat they like; and I do not object to their taking (with moderation, however) wine, water and ſpirits, ale, or porter. My applications, as hath been already obſerved, allay pain and inflammation, and alſo always either prevent or remove feveriſhneſs; and as at the ſame time (if one may judge from their effects) they have powerful antiſeptic virtues, I have never had occaſion to order bark, or any internal medicines whatever, and I have only once thought it neceſſary to let blood. When a patient is coſtive, I order boiled pot barley and prunes, or ſome other laxative nouriſhing food, and ſometimes an injection, but never any purgatives. It is diſtreſſing to a patient with bad ſores to be often going to ſtool. Beſides, I have remarked that weakneſs and languor (which never, in my opinion, haſten the cure of any ſore) are always brought on more or leſs by purgatives. From the effects too I have felt them have on myſelf, and obſerved them to have on others, they do not ſeem to me to have ſo much tendency to remove heat and feveriſhneſs as is generally imagined; and I ſuſpect that, contrary to the intention of adminiſtering them, they oftener carry off uſeful humours than hurtful ones. But I am going

out of my depth, and expoſing myſelf to criticiſm, by ſpeaking on a ſubject that I ſurely muſt be very ignorant of; I will, therefore, return to my vinegar. I have already ſaid that I always prefer wine vinegar, when it is to be had; I have, however, uſed, with very good effect, vinegar made of ſugar, gooſeberries, and even alegar; but which ever of them is taken, it ought to be freſh and lively taſted.

I once made ſome trials (on a burn I met with myſelf) of oil of vitriol diluted with water and of different degrees of ſtrength, but I found its effects to be the very reverſe of vinegar, for it increaſed the pain and heat even when it was pretty much diluted. I make no doubt that diſtilled vinegar might do; but ſince the common ſort, when freſh and good, has in every caſe been ſo efficacious, there ſeems to be no occaſion to attempt improving upon it; and as acids are of a pungent penetrating nature, perhaps it would not be ſafe to apply one too ſtrong to a raw and tender ſore. Even the common vinegar, only by being uſed too cold, affected two of my patients with tremblings and chillineſs, which alarmed me a good deal. I removed theſe ſymptoms indeed (as I before

before mentioned), very readily, by warming the patients feet with cloths dipped in warm water, and giving them warm water and ſpirits to drink; but ever ſince I have been careful to uſe precautions againſt the like ſymptoms, particularly in cold weather, by warming the vinegar a little, placing the patients near a fire, giving them ſomething warm internally, and, in ſhort, by keeping them in every reſpect in a comfortable condition.

In any ſlight caſe it is not neceſſary to heat the vinegar, and ſeldom in ſevere ones, if the injury is on the hands or face. Were it not from its chilling effects, it ought to be uſed cold on every part, becauſe heating weakens it, and haſtens its becoming vapid during the application; when uſed warm, it muſt, therefore, be the oftener thrown out and replaced with a freſh ſupply.

If the vinegar is introduced into hoſpitals, tubs (reſembling bathing tubs, but ſhallower) that would hold a patient at full length would be uſeful in caſes of univerſal burns or ſcalds. A mattreſs, or ſomething ſoft, ſhould be made to fit the tub, and the patient ought to be extended on it, and as much warm vinegar poured into the tub as would wet all the under part

of the body and the ſides, and the upper part might be wetted with cloths. I never met with ſuch a caſe; but from the ſucceſs I have uninterruptedly had, I ſhould not be afraid of undertaking almoſt any caſe.

Before I conclude I muſt obſerve, that, upon looking over my caſes, I ſee I generally do not open the bliſters till the vinegar has been applied for an hour. I ſaid in my laſt that I opened them before I began to uſe the vinegar, but I was then in a miſtake; it is, however, I believe, not very material.

I have now, Sir, ſaid every thing on this ſubject that occurs to me to be neceſſary. I wiſh I could have been leſs prolix; all I have aimed at is to be underſtood, and I wiſh I may have ſucceeded even in that: I ſhall, however, at all times be proud to anſwer you punctually any queſtions you may put to me on points on which I have not been intelligible, or on any new ones that may occur to yourſelf; and I flatter myſelf that, under your foſtering hand, this accidental diſcovery of mine may one day be conſidered as no unimportant acquiſition to the healing art.— I converſed with you, when in London, about the poſſibility of extirpating old ſcars, and I intend, when opportunities offer,

offer, to make ſome experiments on this ſubject, the reſult of which I ſhall take the liberty of communicating to you.

I have the the honour to be, &c.

LETTER III.

Edinburgh, 4th November, 1791.

SIR,

IT is my earneſt wiſh that the purport of what I have written to you on the ſubject of burns and ſcalds ſhould be made public, and nothing, therefore, could give me more pleaſure than to ſee, by your letter of the 19th of October, that you ſeem to think my communications are not unworthy of a place in the Medical Facts and Obſervations.

What I mentioned in my laſt letter concerning the poſſibility of eradicating old ſcars, is, at preſent, merely matter of ſpeculation, and if taken notice of at all in the intended publication, ſhould, I think, only be mentioned by way of hint. The method I propoſe to myſelf for filling up and effacing old ſcars, and removing claret and other marks children are

born with, is to bliſter the parts, and then lay iſſue plaſters on them till there is a complete excoriation and a ſuppuration begun, when I would heal the ſores with chalk and poultices, as in burns.

I do not expect that in every caſe this will be effectual, but I ſhould imagine it may be tried with ſafety, and that probably it may in many caſes be of ſervice.

As I wiſh not to advance a ſingle circumſtance that is not ſtrictly fact, I have, ſince I received your letter, viſited a good many of my old patients with a view of examining again whether any marks or ſcars really remain on the parts that were affected, and I think it proper to inform you that not a veſtige of a mark is to be ſeen on any of their faces, and in general on no other part, though I muſt confeſs I found ſome exceptions. One boy had a pretty large ſcar on his foot, deeper than the pits of the ſmall pox, but without any ſeams or ridges on it, neither is it in the leaſt drawn together. This boy was very unruly, and never could be kept from running and jumping about during the cure, which, although the injury was not a ſevere one, was the moſt tedious of any I have ever met with. There was probably ſomething unfavourable

vourable in his conſtitution, as he once before had a ſore on the ſame foot that was very obſtinate, and left a deep hole.

The ſkin on the parts affected of the brewer's ſervant, whoſe caſe I related in my laſt, ſeems thinner than that on the other parts of his legs, and has not regained its proper colour, but the ſurface is ſmooth and even with the fleſh around. A man too who was burnt with liquid pig iron on both his legs and feet, in a moſt ſhocking manner, and whoſe caſe was the worſt I have ever encountered, bears ſuch marks as readily ſhow where the worſt of his ſores were: there are, however, no pits or hollow places, and but little redneſs on the ſkin, which appears ſomewhat clear and thin, and the lines on the ſurface do not run in the ſame direction with thoſe on the ſkin around, but are drawn as if from the center to the extremities of the parts that were affected. The two laſt-mentioned patients are hard-working men, in poor circumſtances, and could not afford to give their legs eaſe ſo long as I could have wiſhed: they took little care too to keep ſoft linen between their hard coarſe worſted ſtockings and the tender ſkin when newly formed, and were not in many other reſpects treated and taken care of, when the ſores

were at the worſt, as patients would have been in better circumſtances; all which may perhaps account, in ſome meaſure, for the appearances I have deſcribed.

Before I conclude I ſhall take the liberty to ſuggeſt, that my method of cure ſhould be particularly recommended to the ſurgeons of the army and navy, where accidents by the explo-ſion of gunpowder have often been fatal. The flame of it paſſes inſtantly off the parts, and conſequently does not burn them deep; and I have, on that account, always found leſs difficulty in curing injuries by gunpowder than almoſt any others.

I am, with much reſpect,

SIR,

Your moſt obedient, humble ſervant,

DAVID CLEGHORN.

XII. *An*

XII. *An Account of the Cure of a preternatural Anus; with Remarks on the Hiſtory and Treatment of Caſes of this Kind. By M.* Deſault, *Surgeon in Chief of the Hotel Dieu at Paris.* Vide *Journal de Chirurgie*, Tome I. 8vo. Paris, 1791.

THE ſubject of this intereſting and inſtructive caſe was a ſailor, named Francis Vialtet, who, in May, 1786, while ſerving on board the St. Michael, a ſhip of war, was wounded, in an engagement at ſea, by the burſting of a bomb. The wound extended from two inches above the right abdominal ring to the bottom of the ſcrotum, where the teſticle was laid bare; and at the upper part of the wound a portion of divided inteſtine, of about an inch in length, protruded, but returned into the abdomen again while the ſurgeon of the ſhip was cleanſing the wound.

A month after the accident the patient was brought to the Marine Hoſpital at Breſt, where he remained till the wound was ſufficiently healed to enable him to undertake a long journey on foot to Moulins, the place of his birth. A portion of inteſtine, however, protruded through

through the wound, from which fæces were inceſſantly diſcharged. This protruſion of the inteſtine was conſiderably increaſed by the journey, and his ſituation becoming every day more and more diſtreſſing, he went from one hoſpital to another, but without experiencing relief, till, at length, on the 29th of September, 1790, he was admitted into the Hotel Dieu at Paris.

At this time the portion of protruded inteſtine had acquired a conſiderable bulk. Its ſhape was nearly that of a cone nine inches in height, the middle part of which projected a good deal forwards. Its baſis, which was ſlightly conſtricted, came out under a fold of the ſkin, a little above the abdominal ring: its apex, which inclined backwards and hung down to the middle of the thighs, terminated in a ſmall orifice, through which were diſcharged the fæces. From the moment of the accident he had ceaſed to void any thing like fæces in the natural way; but it appeared that once in three or four months he had diſcharged, by the anus, a ſmall quantity of whitiſh matter, which ſeemed to be nothing more than the mucus ſupplied by the portion of inteſtine next to the anus.

The

The whole ſurface of the tumour was red, and exhibited (more eſpecially at its lower part) an appearance reſembling the valvular one of the inner ſurface of the inteſtines. On the outer ſide of this maſs, another ſmaller tumour, reſembling the other in colour and conſiſtence, was ſeen iſſuing from the ſame abdominal opening. This laſt was of an oval ſhape, but its orifice was ſo conſtricted as to ſuffer only a little moiſture to eſcape. Both theſe tumours had a periſtaltic motion, ſimilar to that of the inteſtines.

The patient, who was tall, and naturally ſtrong and of a good conſtitution, though extremely thin, was obliged, by the violent pain he experienced, at times, in the abdomen, to be conſtantly in a curved poſition, ſo that in walking he ſupported himſelf with a pair of low crutches. An earthen pot, faſtened round his waiſt by means of a cord, and hanging between his thighs, received the extremity of the inteſtine, and the matter that diſtilled into it ſoon acquired an inſupportable fœtor.

M. Deſault had no difficulty in determining, 1. that the principal tumour was formed by that portion of the inteſtine which correſponded with the ſtomach, and which being invagi-

nated *, ("if," says he, "I may be allowed "so to express myself,") like the finger of a glove turned inside out, presented to the eye its internal surface; 2. that the smaller tumour was formed by the lower part of the intestine invaginated in the same manner; and 3. that the edges of the divided portion adhered to the opening in the parietes of the abdomen, and were united and confounded with them by one common cicatrix.

The long exposure of the parts to the air, the irritation occasioned by the constant discharge of fæces, and by their being rubbed by the patient's cloaths, &c., had so thickened and hardened the membranes, that, our author observes, it would have been hardly prudent to have attempted the reduction of such a mass, if experience had not already taught him how much, in similar circumstances, may be expected from compression. By way of trying its efficacy in this particular case, he compressed the tumour with both his hands for several minutes; and the diminution of bulk he obtained by this method convinced him that a great deal more might be effected, towards the relief of

* *Invaginé.*

the

the patient, by a well-regulated and long-continued compreſſion.

For this purpoſe M. Deſault employed a ſimple bandage, with which he covered the whole of the tumour from below upwards, leaving only an opening at the apex ſufficient for the paſſage of the fæces. The good effect of this method was ſoon perceptible; for in the evening of the day the bandage was firſt applied it became neceſſary to tighten it on account of the diminiſhed bulk of the tumour; and by the end of the fourth day the inteſtine had reſumed its natural ſize.

M. Deſault, now thinking it poſſible to reduce the inteſtine, directed an aſſiſtant to raiſe the tumour perpendicularly to the opening in the abdomen, and then introducing one of his fingers into the orifice, while with his other hand he prevented the regurgitation of the inteſtine, he was enabled gradually to puſh back the whole of it into its natural ſituation. The ſmaller tumour was then reduced in the ſame manner, and with much leſs difficulty.

Notwithſtanding this ſucceſsful reduction of the inteſtine, one great ſource of affliction to the patient ſtill ſubſiſted, and this was the continual diſcharge of fæces through the wound.

To

To obviate this M. Default introduced into the inteſtine a thick tent, made of linen, three inches long, and ſupported it by a ſuitable bandage. He intended to remove this twice a day, for the purpoſe of affording a paſſage to the fæces; but it had not been long applied before the patient complained of a great heat in his bowels, and ſoon after paſſed wind by the anus. To theſe ſymptoms ſucceeded pains like thoſe of colic, and a ſharp pricking pain in the rectum, attended by an inclination to go to ſtool, and he voided, in the natural way, about half a pound of very fluid fæces, ſimilar to ſuch as are frequently obſerved after an indigeſtion. In the courſe of the night following he had eight more ſtools reſembling the firſt, all of which were preceded by acute pain about the rectum. The ſtools continued to be very frequent during the three following days, but the pain that preceded them became leſs and leſs conſiderable, the fæces acquired by degrees a firmer conſiſtence, and in proportion as this change took place the frequency of the evacuation diminiſhed.

The linen tent was retained in the inteſtine till the eighth day, when it was removed, and M. Default contented himſelf with covering the external

external orifice with a doſſil of lint, ſupported by compreſſes, over which was applied a broad flat piece of elaſtic gum. This mode of compreſſion proved ſufficient to direct the courſe of the fæces through their natural channel, and from that time the whole of them continued to be voided by the anus.

The patient now gradually recovered his health and ſtrength, and during the two months he remained in the Hotel Dieu, after this period, his fæces were conſtantly ſimilar to thoſe of a man in health, and he was perfectly free from complaint. He was repeatedly examined by different ſurgeons, moſt of whom had attended to his caſe from the time of his admiſſion into the hoſpital, and nothing more was obſervable in the neighbourhood of the wound in the abdomen than a ſlight ſerous exudation which a ſmall part of the lint placed over the orifice had imbibed. Three months after his diſcharge from the Hotel Dieu, and five from the date of his recovery, he was examined by the ſurgeon of the hoſpital at Moulins, to which place he had returned, and was then found to be ſtill in the ſame good ſtate as when he quitted Paris, although he had lived ſomewhat intemperately.

Emboldened

Emboldened by the ſucceſsful event of the caſe, the patient began now to think himſelf ſecure from any danger of a relapſe; and accordingly engaged, we are told, in violent exercise, and even in feats of activity, in order to make a diſplay of his vigour in the eyes of his townſmen, who had ſeen him only eight months before in a deplorable ſtate. Theſe exertions, as might be expected, produced very alarming effects; for having one day undertaken, for a wager, to lift a caſk of wine upon his knees, his bandage broke, but this did not prevent him from perſevering in his attempt and winning the wager. He walked, it ſeems, for two hours after this with his handkerchief tied round his waiſt; but the inteſtine had begun to make its way out again through the opening which ſtill ſubſiſted in the abdomen, and before he could reach home ſix inches of it had protruded.

He at firſt endeavoured to reduce it himſelf, but without ſucceſs. Different ſurgeons of the town who came to his aſſiſtance likewiſe failed. This was on the 4th of March, 1791, and he immediately determined to attempt to get back to Paris. He began his journey in a waggon, but the pain he experienced from this ſoon obliged him to quit it, and to reſume his former mode

mode of travelling, on foot, ſupported by crutches, and with an earthen pot, as before, between his legs to receive the fæces.

In this condition he reached the Hotel Dieu at Paris, and came again under the care of M. Deſault, on the 31ſt of March. The hardneſs of the tumour at this time, we are told, was as great, though its bulk was not ſo conſiderable, as when he was admitted the firſt time. After bleeding him, recourſe was had, as before, to a gradual compreſſion of the inteſtine by means of a bandage; but ſix days elapſed before the inteſtine was in a ſtate that would allow M. Deſault to attempt its reduction. It was then effected, however, it ſeems, without much difficulty; and compreſſes of lint, linen, and elaſtic gum, properly ſupported, were applied as before. The reduction of the inteſtine was immediately followed by nauſea and vomiting, which ſubſided in about two hours, when the patient had a copious evacuation by ſtool, of very liquid fæces, which was preceded, as formerly, by pains in the bowels, particularly about the rectum. During the following night and day he had a diarrhœa, which leſſened on the ſecond day, and the fæces then began to reſume their natural conſiſtence.

On the 9th of April, the day the account of the caſe was written, the fæces were continuing to paſs in the natural way, without the leaſt diſcharge from the wound, and the patient, M. Deſault aſſures us, was in every reſpect as well as before his relapſe, ſo that he propoſed to ſend him out of the hoſpital again in a few days.

To illuſtrate his account of the caſe M. Deſault has added two figures of the ſtate of the parts before and after the cure, which our readers will find accurately copied in the annexed engraving, the references to which are as follow:

In fig. 1. the letters *a*, *b*, *c*, *d*, *e*, mark the principal tumour formed by the part of the inteſtine next to the ſtomach, turned outwards upon itſelf like the finger of a glove.

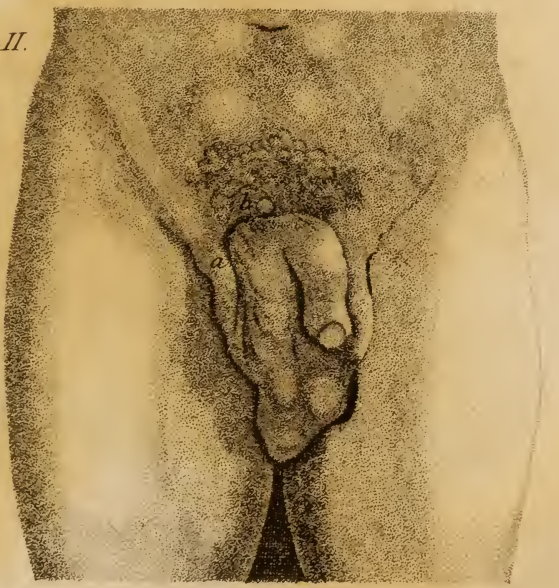
a, *e*, the baſis ſupporting the broadeſt part of the tumour, and iſſuing from under a fold of the ſkin.

b, rugoſities formed by the villous membrane of the inteſtine.

c, the

Fig. I.

Fig. II.



Jamey del. Ravenhill sculp.

London Published by J. Johnson St Pauls Church Yard, Jan.y 14. 1792.

c, the apex of the tumour, having a ſmall opening poſteriorly through which the fæces iſſued.

e, *f*, the penis puſhed towards the left by the tumour.

g, the ſmaller tumour formed by the part of the inteſtine next to the anus.

Fig. 11. repreſents the ſtate of the parts, in December, 1790, after the cure of the patient.

a, *b*, a fold of the ſkin forming a ſort of valve before the opening in the abdomen, which remained fiſtulous.

At the time the preceding caſe occurred in the Hotel Dieu M. Deſault had under his care there another man with a preternatural anus that had been formed eleven years before, in conſequence of a ſcrotal hernia, the ſtrangulation of which had terminated in gangrene. In this caſe a portion of the inteſtine next the ſtomach had protruded with its villous membrane outwards, as in the caſe of the ſailor, and formed a tumour of three inches in length; but the other portion of the inteſtine did not appear. This patient, M. Deſault obſerves, was

lean and feeble, although he devoured a prodigious quantity of food, but it ſeems he conſtantly voided it in an imperfectly digeſted ſtate, and to this circumſtance our author thinks it was owing that he preferred food of difficult digeſtion, particularly ſallad.

This man, encouraged by the ſucceſsful termination of the ſailor's caſe, entreated M. Deſault to undertake the treatment of his, and it was accordingly attempted, though with little expectation of ſucceſs, as a portion of the inteſtine contiguous to that which protruded, and which had formerly fallen down into the ſcrotum, had contracted ſuch an adheſion to the ſurrounding parts, that it was found impracticable to make any preſſure on the opening in the inteſtine without at the ſame time ſubjecting this adhering portion to compreſſion. M. Deſault ſucceeded, however, in the reduction of the protruded portion of inteſtine, and its opening was cloſed with a linen tent, ſupported by means of a truſs. Eighteen hours after this the patient experienced ſlight colic pains in his bowels, which alarmed him ſo much, that he removed the tent, and gave up all hopes of cure.

This attempt, however, our author obſerves, ſlight as it was, ſeemed to have produced a ſenſible effect. The patient, who before had been accuſtomed to void, about once in four months, a whitiſh mucus by the anus, had been obliged that day to go twice to the cloſe ſtool, and had voided each time as much of this mucus as he uſed to do when the intervals between this kind of ſtools were very long. The ſame thing, we are told, happened during the eight following days. The intervals afterwards became gradually longer, and at the time (April, 1791) the account was written he had paſſed a whole month without any ſuch mucous diſcharge.

From this caſe, M. Deſault candidly acknowledges, no concluſion can be drawn; but in a diſeaſe ſo little underſtood, as the one in queſtion, every well-authenticated fact, he obſerves, becomes of importance.

At the time he was writing this paper he had, he tells us, two other caſes of preternatural anus under his care, of different kinds, but both of them very complicated, and likely to throw conſiderable light on the diſeaſe in queſtion, and on the manner of treating it. One of theſe patients, he adds, already voided fæces by the rectum, and although there was ſtill a

ſlight diſcharge from the opening in the abdomen, every thing ſeemed to announce an approaching cure.

This diſeaſe of the preternatural or (as it is more commonly, though perhaps improperly, called) *artificial* anus affords, in the opinion of our author, a new field of obſervation to the practitioners of ſurgery. The writings of the ancients, he remarks, furniſh us with very few inſtances of ſuch an affection. They occur, he acknowledges, more frequently in the writings of the moderns, but in general, he obſerves, we find even in theſe only the occaſional cauſe of the diſeaſe, and the external appearance of the parts mentioned, without any deſcription of the ſtate of the inteſtine, a circumſtance on which he ſeems to lay the greateſt ſtreſs. One of the moſt frequent occurrences in this complaint, the protruſion of the inteſtine out of the belly, ſeems, he obſerves, even to have eſcaped the notice of every writer from the time of Hippocrates, who has deſcribed it*, to that of Fabricius Hildanus, who, at the beginning of

* Epidem. lib. vii.

the

the laſt century, related an example of it as a thing unknown and altogether extraordinary*.

Although we find the writers ſince the time of Fabricius frequently ſpeaking of tumours formed externally by the inteſtine, yet it is only within theſe few years, our author contends, that the ſtate of the parts conſtituting ſuch tumours has been aſcertained. M. Robin, he obſerves, found the cæcum and part of the colon invaginated in the rectum, in a hernia of the latter inteſtine that proved fatal. This fact, which we find related by M. Hevin in the fourth volume of the *Memoires de l'Academie de Chirurgie* †, and another ſimilar one deſcribed by M. Le Blanc, would, he thinks, have been ſufficient to point out to us the ſtate of the inteſtine in theſe caſes, even if M. Le Cat had not had occaſion to diſſect the dead body of a woman who had a preternatural anus, and to convince himſelf of the invagination of the inteſtine, which in that caſe had protruded itſelf externally ‡.

* Centur. 1. obſ. 74.

† Edition in 4to.

‡ Philoſophical Tranſactions, No. 460, p. 716.

The effects enumerated by our author as attendant on a complaint of this kind, even in its ſimpleſt form, are, the extreme uncleanlineſs occaſioned by the inceſſant diſcharge of fæces through the preternatural opening; the excoriation of the ſurrounding parts; the frequent return of griping pains to which the patient in theſe caſes is ſubject; the difficulty with which the fæces are ſometimes evacuated on account of the narrowneſs of the opening; and laſtly, the reduced ſtate of the patient's ſtrength, in conſequence of imperfect digeſtion, and which ſometimes terminates in a fatal maraſmus, as in the caſes related by M. M. Hoin and Le Blanc *, and as our author himſelf had occaſion to ſee lately in the Hotel Dieu at Paris.

Theſe inconveniences, he obſerves, have induced ſurgeons to attempt different modes of relief in ſuch caſes. Receptacles made of ſilver, of tin, and, what is ſtill better, of elaſtic gum, applied to the opening in the abdomen, and ſupported by a ſuitable bandage, have, in different caſes, rendered the condition of the patient leſs offenſive to himſelf and thoſe about

* Eſſai ſur les Hernies. 1768.

him,

him, by collecting the fæces, and thus in ſome meaſure leſſening the fœtor; and in one caſe M. Moſcati is ſaid to have been able to retain in the opening in the belly a leaden canula through which the fæces were conveyed into a receptacle of tin *.

M. Sabatier, it ſeems, propoſes †, in theſe caſes, to keep, by means of a tent of ſufficient bulk, the opening in the inteſtine large enough to allow an eaſy paſſage to the fæces. On the other hand, Profeſſor Richter adviſes us (with a view to render the digeſtion more complete) to check the diſcharge of fæces by means of a piece of ſponge applied to the external opening, and ſupported by an elaſtic bandage ‡. This method, our author obſerves, though very ingenious, has been condemned by M. Leffler, who has ſeen it followed by pains and conſtipation of the bowels, and by inflammation and excoriation of the ſkin.

Some few practitioners, M. Deſault remarks, not ſatisfied with theſe palliative methods, have been induced to attempt the radical cure which

* Mem. de l'Acad. de Chir. Tom. V. p. 596.

† Ibid. p. 594.

‡ Traité des Hernies, traduit par Rougemont, chap. xxviii.

nature

nature herſelf, in theſe caſes, ſeems to point out. Numerous inſtances, he obſerves, prove that the fæces have oftentimes reſumed their natural courſe after having been diſcharged, even for many months, from the wound in the abdomen that has remained after an operation for a hernia. He particularly refers to a caſe deſcribed by the late M. Petit, in which the two ends of the inteſtine hanging out of the ring, after the ſeparation of the gangrenous parts, became covered with fleſhy granulations, and were gradually confounded with the ſurface of the wound by a common cicatrix, the fæces in the mean time reſuming their courſe by the anus, without any aſſiſtance from art *. M. Deſault has found an account of another fact of the ſame kind related by Acrel in his Caſes of Surgery †; and he refers for ſimilar inſtances to the writings of Le Dran, *(Obſ. de Chirurg.)*; Pott, *(Treatiſe on Ruptures)*; Richard, *(Obſ. de Med.)*; the *Journal de Medecine*, (Tomes XXXII. & XXXVII.); the Tranſactions of the Society at Harlem, (Tom. I.);

* Malad. Chir. Tom. II. p. 407.

† Chirurg. Handelſer. p. 174.

and

and the Eſſays publiſhed by a Chirurgical Society at Copenhagen.

The reſources of nature in ſo great a number of inſtances could not fail, our author remarks, to excite the efforts of art; and he thinks it probable that the want of ſucceſs in the firſt attempts depended principally on the defective method adopted by practitioners, who ſeem not to have ſufficiently conſidered the nature of the diſeaſe. Some, he obſerves, not properly attending to the *invagination* of the inteſtine, (we uſe his own expreſſion) have propoſed to bring together its divided portions, while out of the abdomen, according to Ramdhor's method, and to reduce them when ſufficiently united *. Others have conſidered a ſtrict regimen as the moſt likely means of healing the opening in the abdomen, by diminiſhing the diſcharge of fæces. We find our author, however, ſpeaking of both theſe methods as matters of mere ſpeculation which have never been reduced to practice.

M. Default has found, in the letter addreſſed by M. Bruns to M. Henkel, a caſe of preternatural anus, the edges of which, after having

* Richter, chap. xxviii. p. 162.

been

been previouſly excoriated by the application of lapis infernalis, were kept together by means of a ſuture. In this way, it ſeems, a reunion was effected, but it was not of long duration, as the wound burſt open again before many days had elapſed.

M. Le Cat alſo, our author obſerves, thought of attempting the cure of a woman who laboured under a complaint of this kind, by excoriating the edges of the wound and bringing them together by means of a ſuture, after having previouſly dilated, by means of a canula, the portion of inteſtine correſponding with the anus. But this portion, it ſeems, had acquired ſo conſiderable a bulk, that it reſiſted violent efforts to reduce it, and the patient was ſo much alarmed by the failure of theſe endeavours to relieve her, that ſhe refuſed to ſubmit to any farther trials *.

Theſe unſucceſsful caſes, M. Deſault obſerves, deterred ſurgeons from making any new attempts in caſes of this kind, and they began, at length, to be perſuaded that the cure of theſe complaints was impracticable, or at leaſt

* Philoſophical Tranſactions, in the place already quoted.

attended

attended with great danger to the life of the patient.

Several practitioners, he remarks, have gone ſo far as to conſider even the reduction of the inteſtine as dangerous; and all of them have ſuppoſed it to be impracticable, when the tumour has been of long ſtanding and its bulk conſiderable. It has even, he adds, been aſſerted, that the portion of inteſtine next to the rectum oftentimes cloſes, and that its cavity becomes obliterated. Our author has found even Profeſſor Richter falling into this miſtake, although the invagination, which he ſuppoſes to exiſt, ſeems to be a deciſive proof of the exiſtence of a cavity. This pretended obliteration, however, M. Deſault aſſures us, is ſo far from being ſupported by facts, that all thoſe he is acquainted with ſeem to prove that it cannot poſſibly take place. M. Le Cat, he obſerves, diſcovered no appearance of any ſuch obliteration in the body he opened twelve years after the fæces had ceaſed to paſs through the rectum; and in the patient whoſe caſe has been already mentioned as having died in the Hotel Dieu of maraſmus in January laſt, the inferior portion of the inteſtinal canal was found, we are told, entire, though a little contracted.

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In that case a considerable portion of the ileum had been destroyed by gangrene, and nothing had passed through the rectum for more than two years before the patient's death. It is moreover remarked by our author, that all the patients, of whose cases we have any accurate account, have voided from time to time, by the anus, the mucus of the intestine; and this fact alone he considers as an evident proof that the cavity in such cases is not obliterated.

Some authors, he observes, from not having properly attended to the state of the intestine, seem to think that it protrudes out of the belly in its ordinary state, and that it is not its extremity that adheres to the skin; and hence their fears lest the fæces, or the mucus of the portion of intestine next to the rectum, should find their way into the cavity of the abdomen. On this subject he refers to Professor Richter's work * already quoted.

The thickening of the membranes of the intestine he considers as a more serious objection. This, he observes, has always been looked upon as an invincible obstacle to the reduction; but the case just now described proves, he thinks,

* Chap. xxix.

sufficiently,

ſufficiently, the poſſibility of getting back the inteſtine into the cavity of the abdomen; and he is of opinion that even without any ſuch inſtance we might have been led to attempt it from obſerving the effects of a ſimilar mode of treatment in caſes of *prolapſus ani* of long ſtanding, and which, though ſeemingly irreducible, on account of their bulk, have been found to give way to a graduated compreſſion.

The number and extent of the adheſions, which have inſpired ſome practitioners with ſo much fear, ought not, our author contends, to prevent the reduction. For ſuppoſing them to exiſt, and to be even more dangerous than thoſe which inflammations of the lower belly almoſt always produce, he does not ſee what advantage could be expected to reſult from leaving the invaginated portion of the inteſtine out of the abdomen. Beſides, ſuch a practice, he obſerves, may be productive of the moſt dangerous and even fatal effects. In proof of this he refers to M. M. Puy *, Hoin, and Le Blanc †, who, in different caſes, have ſeen the ſwelling and inflammation of the protruded gut ſo conſiderable

* Mem. de l'Acad. de Chir. Tom. V.

† Operat. de Le Blanc, Tom. II. p. 445.

as to occaſion death ; to M. Lange *, who, in another inſtance, found the inteſtine ſo inflamed and tumefied, that it became neceſſary to remove the ſtricture by means of an inciſion in the abdomen; and laſtly, to the caſe of the invalid, mentioned by M. Sabatier in his memoir on this ſubject †, whoſe life was endangered from a ſimilar cauſe.

He conſiders it, therefore, as demonſtrated, (and he ſpeaks of this as the principal point for which he contends) that, in the caſe of a preternatural anus, ſound practice requires the inteſtine to be replaced within the belly, and that ſuch a reduction is always poſſible, whatever may be the ſize of the tumour, and however long it may have exiſted.

There remains, therefore, he thinks, only to be conſidered the moſt convenient and eaſy mode of retaining the inteſtine, and preventing it from again protruding. The ivory peſſary which has been propoſed for this purpoſe, he obſerves, by no means fulfils this indication, as the inteſtine is ſtill liable to eſcape through the aperture in the inſtrument, which would thus

* Schmucker, Vermiſchte Chirurg. Schriften. Tom. II.

† Mem. de l'Acad. de Chirurgie, Tom. V.

become

become a new means of ſtrangulation. Beſides, he adds, the preſſure of ſo hard a ſubſtance muſt neceſſarily affect the ſurrounding parts, and ſoon render it inſupportable, at leaſt if the preſſure made by it is ſufficient to fulfil the purpoſe it is introduced for, (but on what good grounds our author thinks it would be difficult to ſay) that of ſupporting the edges of the opening in the abdomen.

The ſoft cuſhion recommended by M. Sabatier, and the ſponge employed in theſe caſes by Profeſſor Richter, are not liable, M. Deſault obſerves, to the ſame diſadvantages; but they both of them, he adds, are attended with the inconvenience, remarked by M. Leffler, of imbibing a portion of the thin and acrid matter that paſſes through them, and which muſt unavoidably excoriate the adjacent parts.

Our author next proceeds to examine the apparatus he himſelf adopted, of the tent made of linen, with the addition of a layer of lint, and other compreſſes, properly ſupported by a bandage of ſufficient tightneſs. Such an apparatus, he obſerves, while it completely prevents the protruſion of the inteſtine, will conſtantly keep up a ſufficient dilatation, by retaining the fæces in the interval of the dreſſings, and oc-

caſion them to remain long enough in the inteſtinal canal to afford nouriſhment to the patient. If a little fluid ſhould chance to eſcape, it will, he remarks, be abſorbed by the lint, and of courſe will occaſion no irritation on the ſkin. The patient, he adds, will ſoon be accuſtomed to the ſort of reſtraint which this apparatus will at firſt neceſſarily occaſion; and the ſlight colics which muſt be expected to follow the early uſe of it will, he aſſures us, ceaſe in a very few days.

M. Deſault acknowledges that his views did not extend beyond theſe palliative effects when he firſt adopted this mode of treatment; but the unexpected ſucceſs he experienced from it in the caſe which forms the principal ſubject of the paper before us carried his ideas ſtill farther, by ſhowing him the poſſibility of curing, at leaſt ſometimes, a diſeaſe hitherto conſidered as irremediable, and at the ſame time proving to him the little inconvenience, the advantage even, which might be expected to reſult, in every caſe of this kind, from undertaking the cure by the ſafe and ſimple means he has deſcribed, and varying them according to circumſtances.

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In the preternatural anus, whether it be the conſequence of a penetrating wound of the abdomen, or of a hernia that has terminated in gangrene, there can be only two ſtates of the inteſtine, he obſerves, eſſentially different from each other. One of theſe, and the moſt common, is when only a part of the circumference of the gut has been injured; the other is when the inteſtine has been completely divided. In each of theſe caſes, our author remarks, an adheſive inflammation unites the edges of the ſection of this canal with the edges of the wound of the integuments and other ſurrounding parts, and from that period the parietes of the abdomen, if they remain entire, will prove a ſupplement to the portion of the canal which has been deſtroyed, and the fæces will continue to be voided by the anus, unleſs the portions of the inteſtine ſhould, by their mode of adheſion, form an angle ſufficiently acute to ſtop them in their progreſs.

The wound of the abdomen, from its affording an eaſier and ſhorter iſſue to the fæces than if they had to paſs through all the circumvolutions of the inteſtines, and the morbid ſtate of that canal, are, therefore, in our author's opinion, to be conſidered as the efficient cauſes of

the preternatural anus, or, in other words, of the diſcharge of the fæces through the abdominal opening. But to theſe primary cauſes, he obſerves, is ſoon added another, which, though ſecondary, is not leſs powerful in its effects. This is the contraction which takes place in that part of the inteſtine correſponding with the rectum.

But are theſe cauſes, our author aſks, ſo powerful that the ſurgeon ſhould be deterred from attempting to overcome them? The firſt of the three, that is to ſay, the opening in the abdomen, cannot, he obſerves, be an invincible obſtacle, becauſe it often happens, in hernias attended with gangrene, that the fæces reſume their natural courſe after having paſſed for ſome time through the wound; and he is of opinion that, in the preſent improved ſtate of ſurgery, an accident of this kind is not ſo often followed by a preternatural anus as formerly.

A tent of ſufficient bulk, to act as a plug, may therefore, he obſerves, ſupply the want of continuity in the parietes of the abdomen; but this, he adds, is not all: for the two portions of the inteſtine often form an angle at the part where the ſeparation has taken place; and this

this angle, as M. Morand formerly remarked*, affords more or leſs reſiſtance to the paſſage of the fæces in proportion as it is more or leſs acute, and the endeavours of the ſurgeon to remove this obſtacle, and direct the fæces again into their natural channel, will, our author contends, be ſucceſsful only in proportion as he is able to enlarge the angle formed by the ſegments of the inteſtine, by ſeparating them from each other. Long tents, or plugs, made of lint or linen, introduced and fixed in the two ends of the inteſtine, will, in M. Deſault's opinion, be ſufficient to fulfil this indication, by bringing together gradually the divided portions of inteſtine in a ſtraight line. By this method alſo, he thinks, the upper end of the portion of inteſtine correſponding with the rectum will be dilated, and thus the fæcal matter will gradually make its way to the natural anus.

M. Deſault, towards the concluſion of his paper, indulges himſelf with a hope that the method of treatment he has deſcribed may be the means, perhaps, of reſtoring to ſociety a great number of thoſe unfortunate perſons who

* Mem. de l'Acad. des Sciences, 1735, p. 249.

labour under the complaint in queſtion. Even ſuppoſing that this method can never be completely ſucceſsful, (a ſuppoſition, however, which he thinks is ſufficiently contradicted by the caſe he has deſcribed of the ſailor) ſtill, he contends, it can be productive of no inconvenience, and the patients who have recourſe to it will, at any rate, he obſerves, derive from it the advantage of being able to retain, at will, the alimentary matter, ſo as to be no longer in danger of dying of inanition, and will be ſecure from the conſequences of a ſtrangulation, which are always alarming, and ſometimes fatal.

XIII. *Experiments and Obſervations on the Matter of Cancer, and on the aërial Fluids extricated from animal Subſtances by Diſtillation and Putrefaction; together with ſome Remarks on ſulphureous hepatic Air.* *By* Adair Crawford, *M. D. F. R. S.* — Vide *Philoſophical Tranſactions of the Royal Society of London*, Vol. LXXX. *for the Year* 1790, Part II. 4to. London, 1790.

IN the preſent improved ſtate of chemical knowledge, great advantages may be expected

pected to accrue from a judicious application of it to pathological purpoſes. It is with pleaſure, therefore, that we ſee the ingenious and reſpectable author of the paper before us attempting to throw light on the nature of cancer by inquiring into the properties of its matter.

He begins with pointing out the varieties he has remarked in the colour and conſiſtence of this matter as diſcharged by cancerous ulcers. In ſome caſes, he obſerves, it is of a pale aſh colour; in others, of a reddiſh caſt; and in many inſtances of more or leſs of a brown tinge, which ſometimes approaches nearly to black. Its conſiſtence he has found to be, for the moſt part, thin; but in the cancerous, as well as in other malignant ulcers, he has frequently met with a white ſordes, which cloſely adhered to the ſurface of the ſore, and ſeemed to be ſcarcely miſcible with water. In the ſame patient the appearance of the diſcharge is frequently varied by internal remedies, or by external applications; but if we except the temporary variations produced by accidental circumſtances, the cancerous ulcer, in its advanced ſtage, is, he obſerves, very generally accompanied with a peculiar odour, more highly fetid and offenſive than that which is

emitted by other malignant ulcers. It is, he farther remarks, well known that the cancerous matter occaſions, by its abſorption, ſchirrous tumours of the lymphatic glands contiguous to the parts affected; and that it gradually corrodes the branches of the larger blood veſſels, which have a peculiar power of reſiſting the action of other purulent diſcharges.

The matter employed by Dr. Crawford in his firſt experiments was procured from a patient who had for ſeveral years been afflicted with a cancer in the breaſt. It had been imbibed by cotton, and was of a browniſh caſt. Having diffuſed it through pure water, he divided it into three parts. To one of theſe he added vegetable fixed alkali; to the ſecond, vitriolic acid; and to the third, ſyrup of violets. By the vegetable fixed alkali no ſenſible change was produced; upon the addition of the vitriolic acid the liquor acquired a deep brown colour, a briſk effervescence took place, and at the ſame time the peculiar odour of the cancerous matter was greatly increaſed, and diffuſed itſelf to a conſiderable diſtance through the ſurrounding air: the ſyrup of violets communicated to the portion of liquor to which it was added a faint green colour.

Mr.

Mr. Geber has ſhewn, that animal ſubſtances upon their firſt putrefaction do not effervefce with acids; that, after the proceſs has continued for ſome time, a manifeſt effervefcence takes place; and that this effect again diſappears before the putrefaction has ceaſed.

Suſpecting that the effervefcence in the preceding experiment might have ariſen from a change which the matter underwent, in conſequence of its having been kept ſome days before the trial was made, Dr. Crawford repeated the experiment with a portion of reddiſh matter recently obtained from a cancerous penis. Upon the addition of the acid, the liquor, we are told, acquired, as before, a brown colour, its fetor was much increaſed, and a manifeſt effervefcence took place, although it was not ſo conſiderable as in the former inſtance. A portion of the ſame matter diffuſed through diſtilled water communicated a blue tinge to tincture of litmus, and a greeniſh caſt to ſyrup of violets.

The author obſerves, that when ſyrup of violets was mixed with portions of cancerous matter from a variety of different ſubjects, the change produced was in ſome caſes ſcarcely perceptible; but he aſſures us, that in every inſtance

ſtance the preſence of an alkali was detected by dipping into the matter a ſlip of paper that had been previouſly tinged blue by tincture of litmus, and afterwards ſlightly reddened by acetous acid, the red colour having been invariably in the courſe of a few minutes aboliſhed, and the blue reſtored.

The cancerous matter, as we have already ſeen, acquired, upon the addition of the vitriolic acid, a brown hue. It is well known, that this acid, when it is highly concentrated, communicates a brown or black colour to all animal and vegetable ſubſtances. Being deſirous of learning whether the change which took place upon the addition of the acid to the cancerous matter in this experiment, was different from that which would be produced by the ſame acid in other animal ſubſtances, and particularly in recent healthy pus; Dr. Crawford took equal quantities of the latter, and of aſh-coloured cancerous matter, and having diffuſed each of them through thrice its weight of diſtilled water, he added to them equal quantities of concentrated vitriolic acid; the weight of the acid being nearly the ſame with that of the matter uſed in the experiment. The mixture containing the pus acquired from the acid a faint brown colour;

colour; but that which contained the cancerous matter, was ſuddenly changed to a deep brown, approaching to black. When theſe mixtures were diluted with about twice their weight of diſtilled water, the brown tinge of the former entirely diſappeared; but the latter ſtill retained its brown colour, although it was ſomewhat fainter than it had been upon the firſt addition of the acid.

The aërial fluid which was diſengaged in the foregoing trials from the matter of cancer, by the vitriolic acid, appeared, we are told, from its odour, to have a nearer reſemblance to hepatic than to any other ſpecies of air. As it ſeemed, from its ſenſible qualities, to be a very active, and probably a deleterious principle, our author endeavoured more particularly to enquire into its nature, and to compare it with common hepatic air.

The experiments he deſcribes as having been made for this purpoſe prove, in general, that the fetid odour of the matter of cancer is increaſed by the vitriolic, but entirely deſtroyed by the concentrated nitrous and dephlogiſticated marine acids; that the aërial fluid, which is diſengaged by the vitriolic acid, is ſoluble in water; and that the ſolution depoſits a reddiſh

brown precipitate upon the addition of nitrated ſilver. Whence it follows, that the cancerous matter contains a principle which has many of the properties of hepatic air, and which our author thinks, may perhaps not improperly be termed animal hepatic air.

Having learned from his experiments, as we have ſeen, that the matter of cancer is impregnated with an alkali, which is in ſuch a ſtate as to change the colour of vegetable tinctures, he had very little doubt that this was the volatile alkali; it being well known that putrid animal ſubſtances frequently abound with that ſalt, but have never been found to contain a fixed alkali in a diſengaged ſtate. With a view, however, more deciſively to determine this point, he tried the following experiment:—A quantity of cancerous matter, diffuſed through diſtilled water, was introduced into a glaſs retort to which a receiver was adapted. The mixture was ſlowly diſtilled by means of a ſand heat; and a ſmall quantity of the liquor which came over into the receiver being poured into an infuſion of Brazil wood, inſtantly imparted to it a deep red colour.

Hence it clearly appeared, that the alkali contained in the cancerous matter was the volatile,

tile, becauſe it was ſeparated by diſtillation with a heat which did not exceed that of boiling water.

It ſeemed extremely probable, that the above-mentioned alkali was united to the aërial fluid with which the matter of cancer is impregnated. Of the truth of this fact Dr. Crawford was perſuaded by obſerving, that the ſmell of the cancerous matter was greatly increaſed by the addition of the vitriolic acid: for he could ſcarcely avoid concluding, that this phænomenon aroſe from an union between the acid and alkali, in conſequence of which the odoriferous principle was extricated by a ſuperior attraction.

This concluſion, he obſerves, has been confirmed by his ſubſequent experiments, which prove that the volatile alkali is capable of combining chemically with the aërial fluid contained in the matter of cancer.

Dr. Crawford next treats of the air extricated from cancerous matter, and from other animal ſubſtances, by diſtillation.

A portion of matter from a cancerous breaſt was diffuſed through diſtilled water, and introduced into a ſmall coated glaſs retort, which was gradually expoſed to heat in a ſand bath till the bottom of the retort became red-hot. The neck

neck of the latter was introduced below an inverted jar filled with water, and a quantity of air was received in the jar, which was found to conſiſt of the common air contained in the retort. Two meaſures of it, mixed with one of nitrous air, occupied the ſpace of a little leſs than two meaſures. This portion of air was ſtrongly impregnated with the peculiar ſmell of the cancerous matter.

The heat continuing to increaſe, the water began to boil, and a large quantity of aqueous vapour aroſe; which, as ſoon as it came into contact with the common air, produced a white ſmoke. The ſmell that was now perceived was remarked by thoſe who were preſent to be ſimilar to that of freſh animal ſubſtances when they are boiled. The aqueous vapour in this part of the proceſs was not mixed with any permanently elaſtic fluid.

When the greater part of the water was evaporated, the jar containing the firſt portion of air was removed, and the neck of the retort was introduced beneath an inverted veſſel filled with mercury. Soon after this, a conſiderable quantity of air, having a fetid ſmell ſimilar to that of burned bones, was extricated. This aërial fluid was mixed with a yellow empyreumatic

matic oil. A portion of it being agitated with water was found to be partly imbibed by that fluid; and nitrated ſilver, dropped into the water thus impregnated, produced a reddiſh precipitate.

One meaſure of the air, obtained in the foregoing experiment, being mixed over mercury with an equal bulk of alkaline air, the volume of the mixture was found gradually to decreaſe; and, at the end of three hours, the air in the tube occupied the ſpace of only one meaſure and two tenths. An oily depoſit was now made upon the inner ſurface of the tube. At the expiration of eight days, the interior ſurface of the tube was covered with ſlender films, which had a yellowiſh caſt, and which were irregularly ſpread upon it. The upper ſurface of the mercury within the tube was corroded; in ſome places it had a reddiſh burniſhed appearance; in others, it was changed into an aſh-coloured powder, interſperſed with brown ſpots. The tube was now removed from the mercury, and the air that remained in it had a ſtrong fetid ſmell, reſembling that of burned bones.

From theſe experiments, the author obſerves, it appears that the matter upon which the peculiar

liar ſmell of cancerous ulcers depends is a very volatile ſubſtance, for it eſcaped at the beginning of the proceſs; and alſo that this volatile ſubſtance, which, he thinks, is probably the active principle in the matter of cancer, is not changed, by ſimple expoſure to heat, into a permanently elaſtic fluid; for the air that eſcaped at the beginning of the proceſs, although it ſmelled ſtrongly of the cancerous matter, was found, it ſeems, by Dr. Prieſtley's teſt, to be as pure as common air: and it was evident, he remarks, that the aqueous vapour which came over in the middle of the proceſs was not mixed with any permanently elaſtic fluid; becauſe when this vapour was received in an inverted bottle filled with mercury, it was condenſed into water without any admixture of air.

From ſubſequent experiments with the fleſh of a chicken, and with putrid veal, which the author deſcribes, we learn that the aërial fluids extricated from freſh as well as from putrid animal ſubſtances, by diſtillation, have nearly the ſame properties with that which is diſengaged, by a ſimilar proceſs, from the matter of cancer. Each of them appears to conſiſt of two diſtinct fluids; one of which is ſoluble,

and

and the other insoluble, in water. Dr. Crawford observes of the insoluble portion, that it burns with a lambent flame, and has all the characters of heavy inflammable air; whereas the soluble part, he tells us, resembles the fluid which is extricated from cancerous matter by the vitriolic acid: it has a fetid odour, it decomposes nitrated silver, combines with caustic volatile alkali, and possesses many of the properties of common hepatic air.

There are, however, he observes, several particulars in which the animal and common hepatic air materially differ from each other. Although they are both fetid, yet their odours are not exactly similar. When common hepatic air is decomposed by the concentrated nitrous or dephlogisticated marine acid, sulphur is separated; but when animal hepatic air is decomposed by these acids, a white flaky matter is disengaged which is evidently an animal substance, because it becomes black by the addition of concentrated vitriolic acid. Sulphur is moreover separated during the combustion of common hepatic with atmospherical air; but when the air from animal substances is burned with atmospherical air, no precipitation of sulphur takes place. Indeed, that animal hepatic air

does not contain ſulphur will be apparent, he thinks, from the following experiment.

Equal parts of pure air and of air extricated from freſh beef by diſtillation, were fired by the electric ſhock in a ſtrong glaſs tube over mercury. A little diſtilled water was then introduced through the mercury into the tube, and was agitated with the air which it contained. A portion of this water being filtered, and a ſmall quantity of muriated barytes being dropped into it, the mixture remained perfectly tranſparent. Hence, he infers, that the air extricated from freſh beef by diſtillation does not contain ſulphur; for, if it had contained that ſubſtance, the ſulphur, by its combuſtion with the pure air, would have been changed into the vitriolic acid, and the muriated barytes would have been decompoſed.

He obſerves, that he has frequently repeated the preceding experiment with the air extricated, by diſtillation, from the putrid as well as from the freſh muſcular fibres of animals, but without having been able to diſcover the leaſt veſtige of vitriolic acid.

The experiments, of which the author next gives an account, were made with a view to analyſe the airs which are diſengaged from animal

animal ſubſtances by heat. From theſe it appears that the ſoluble part of the air which is diſengaged from the lean of animal ſubſtances, by heat, conſiſts of three diſtinct fluids, viz. of alkaline air, fixed air, and animal hepatic air.

After deſcribing ſome experiments made with a view to determine the products which reſult from the combuſtion of pure air with animal air, or with the compound aërial fluid extricated from the lean of animal ſubſtances by heat, Dr. Crawford proceeds to treat of the products which reſult from the combuſtion of ſulphureous hepatic with pure air; of the air extricated from animal ſubſtances by putrefaction, (and which, from his experiments, appears to conſiſt of fixed and animal hepatic, mixed with a very ſmall proportion of phlogiſticated air); and laſtly, of the effects produced by expoſing freſh animal ſubſtances to atmoſpherical, hepatic, and pure air. The experiments related under the latter of theſe heads appear, he thinks, to lead to the following concluſions reſpecting the proceſs of putrefaction in the lean of animal ſubſtances:

" The muſcular fibres of animals contain " fixed and phlogiſticated air, the inflamma-

" ble principle in the ſtate of heavy and of
" light inflammable air, and a ſubſtance which,
" by means of heat or of putrefaction, is capa-
" ble of being converted into animal hepatic
" air *. When the muſcular fibre, after the
" death of the animal, is expoſed to the pure
" air of the atmoſphere, the latter, by a ſu-
" perior attraction, combining with the heavy
" inflammable air, produces fixed air, and at
" the ſame time furniſhes the quantity of heat
" neceſſary to the formation of animal hepatic
" air. The coheſion of the fibre being thus
" deſtroyed, the fixed, as well as the light in-
" flammable and phlogiſticated air, which enter
" into its compoſition, are diſengaged, and the
" two latter fluids uniting with each other pro-
" duce the volatile alkali.

" The alterations which take place in putre-
" faction are in moſt reſpects ſimilar to thoſe
" which ariſe from deſtructive diſtillation. By
" expoſure to heat the fixed air of the animal

* In a note to this part of his paper the author obſerves, that the exiſtence of fixed, inflammable, and phlogiſticated air in animal ſubſtances, and the compoſition of volatile alkali, were diſcovered before he began to give particular attention to this ſubject.

" fibre

" fibre is extricated, hepatic air and volatile al-
" kali are produced, and the inflammable prin-
" ciple not coming into contact with the pure
" air of the atmoſphere, is raiſed in the form
" of heavy inflammable air."

Dr. Crawford obſerves, that, from the experiments he has related, it appears that in cancerous and other malignant ulcers, the animal fibres undergo nearly the ſame changes which are produced in them by putrefaction, or by deſtructive diſtillation. The purulent matter prepared for the purpoſe of healing the ulcer is, in ſuch caſes, mixed with animal hepatic air and volatile alkali. The compound formed by the union of theſe ſubſtances, which he thinks, may perhaps not improperly be termed hepatiſed ammonia, decompoſes metallic ſalts, and acts upon metals.

Theſe facts, he obſerves, ſeem to afford an explanation of the changes produced in metallic ſalts, when they are applied to malignant ulcers; the volatile alkali combining with the acid of the metallic ſalt, and the animal hepatic air reviving the metal, either by imparting to it the inflammable principle, or by uniting with the pure air which the calx is ſuppoſed to contain. He thinks it probable that the metal, thus re-

vived, is in ſome caſes again corroded by the hepatiſed ammonia, which communicates to it a black colour. Thus we may account, he obſerves, for the dark incruſtation frequently formed upon the tongue and internal fauces, when venereal ulcers of the throat are waſhed with a ſolution of corroſive ſublimate. And hence alſo, according to our author, the dark tinge which is frequently communicated by ill-conditioned ulcers to poultices made with a ſolution of ſugar of lead. The action of the hepatiſed ammonia, he farther remarks, explains the reaſon why the probes are frequently corroded when they are introduced into ſinuous ulcers, or applied to the ſurfaces of carious bones; and to the ſame cauſe he thinks it is probably owing, that poliſhed metallic veſſels are quickly tarniſhed, when they are expoſed to the effluvia of putrid animal ſubſtances.

From his experiments, the author obſerves, it appears, that animal hepatic air imparts to the fat of animals recently killed a green colour; that it renders the muſcular fibres ſoft and flaccid, and increaſes the tendency to putrefaction. It is therefore a ſeptic principle, and hence he conſiders it as extremely probable, that the compound of this fluid with volatile alkali,

which

which is found in the matter discharged by the open cancer, produces deleterious effects; for although the mischief in cancerous ulcers seems principally to depend upon a morbid action of the vessels, whence the unhealthy state of the matter discharged by such ulcers is supposed to derive its origin, yet from the corrosion of the coats of the larger blood-vessels, and the obstructions in the contiguous glands, there can, he thinks, be little doubt that this matter aggravates the disease. The experiments he has recited, appear to prove, that the hepatised ammonia is the ingredient which communicates to the cancerous matter its putrid smell, its greater thinness, and, in a word, all the peculiar properties by which it differs from healthy pus.

From these considerations he inferred, that a medicine which would decompose the hepatised ammonia, and destroy the fetor of the animal hepatic air, without at the same time increasing the morbid action of the vessels, would be productive of salutary effects. The nitrous acid, he observes, does not destroy the fetor of hepatic air, unless it be highly concentrated; and in this state it is well known that it speedily corrodes animal substances. But the fetor of

hepatic air quickly diſappears when it is mixed with the dephlogiſticated marine acid, even though the latter be ſo much diluted with water as to render it a very mild application. He has found that this acid, diluted with thrice its weight of water, gives but little pain when it is applied to ulcers that are not very irritable; and in ſeveral caſes of cancer it appeared to correct the fetor, and to produce a thicker and more healthy pus. He very candidly adds, however, that other caſes occurred in which it did not ſeem to be attended with the ſame ſalutary effects. He remarks at the ſame time that ſome cancerous ulcers are ſo extremely irritable, that applications which are at all of a ſtimulating nature cannot be ventured upon with ſafety. And hence if the obſervations, which he has made on the efficacy of this acid as an external application, ſhould be confirmed by future experience, he leaves it to the judgment of the ſurgeon to determine both the degree of its dilution, and the caſes in which it may be employed with advantage.

The dephlogiſticated marine acid, as is generally known, has the power of deſtroying the colour, the ſmell, and perhaps the taſte, of the greater part of animal and vegetable ſubſtances.

We

We have ſeen that it corrects the fetor of putrid fleſh. And our author has found, that, when it is poured in ſufficient quantity upon hemlock and opium, theſe narcotics ſpeedily loſe their ſenſible qualities. As it appears, therefore, to poſſeſs the power of correcting the vegetable, and probably many of the animal poiſons, it ſeemed not unlikely, that it might be uſeful as an internal medicine. Conceiving that its exhibition would be perfectly ſafe, he once took twenty drops of it diluted with water. He ſoon afterwards, however, felt an obtuſe pain, with a ſenſe of conſtriction in his ſtomach and bowels. This uneaſineſs, notwithſtanding the uſe of emetics and laxatives, laſted for ſeveral days, and was at length removed by drinking water impregnated with ſulphureous hepatic air. He afterwards found, that the manganeſe, which had been uſed in the diſtillation of the acid, contained a ſmall portion of lead.

Dr. Ingen-houſz has informed him, that a Dutchman of his acquaintance, ſome time ago, drank a conſiderable quantity of the dephlogiſticated marine acid: the effects which it produced were ſo extremely violent, that he nearly eſcaped with his life. If therefore this acid ſhould hereafter be employed as an internal medicine, it would be

be neceſſary, our author thinks, to prepare it by means of manganeſe that has been previouſly ſeparated, by a chemical proceſs, from the lead and other metals with which that ſubſtance is uſually contaminated.

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